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VOL. XII MARCH, 1917 No. 3

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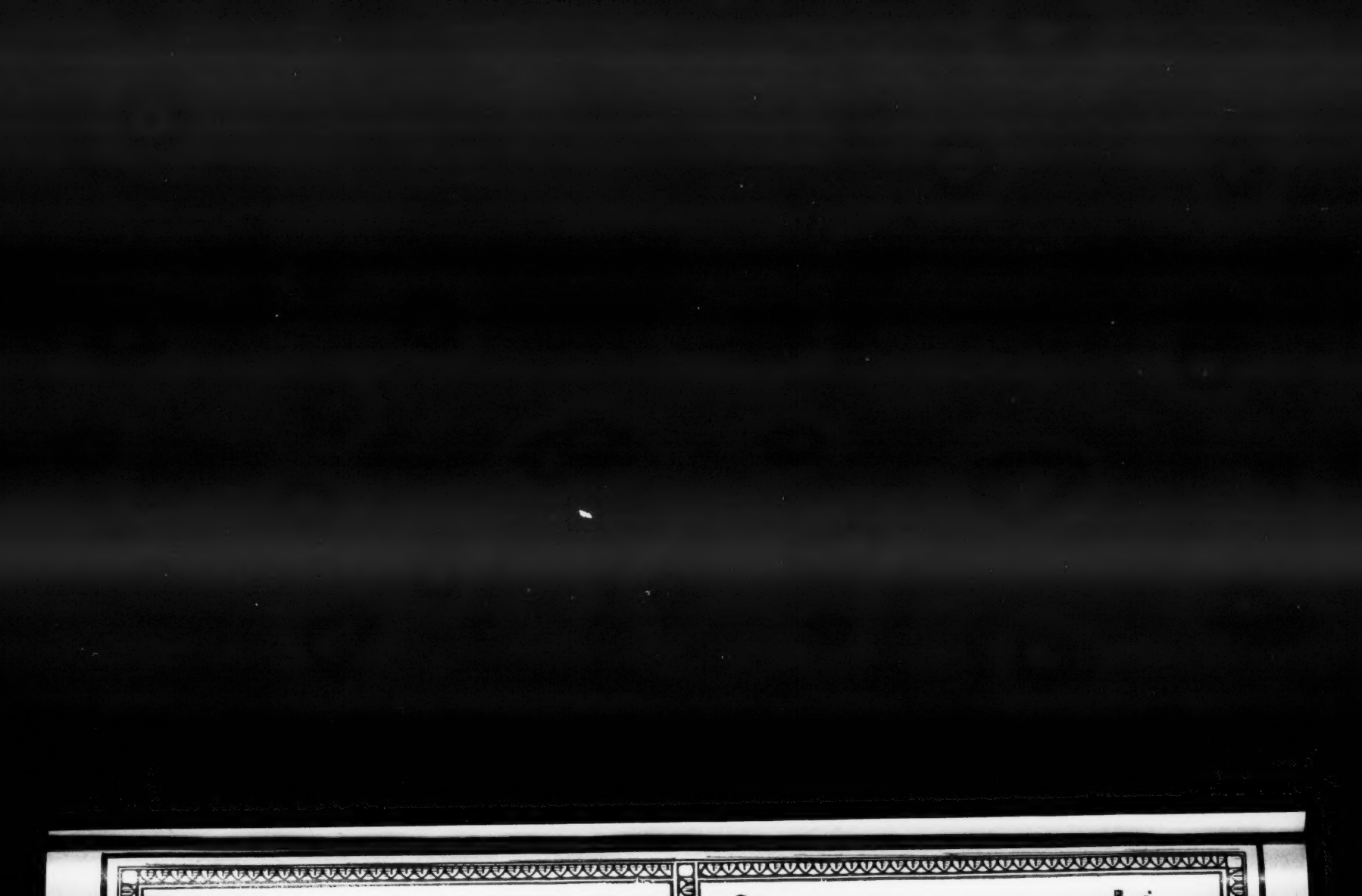

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Oorphorectomy for Nymphomanic and Ticklish Mares

A Summary of Many Observations and the Results of Spaying Twenty-nine Horses and Five Mare Mules, With Method of Operating

By G. A. ROBERTS, D. V. S., Raleigh, N. C.
Professor of Veterinary Science, North Carolina Agricultural and Mechanical College.

WHILE engaged in official duties in North Carolina, it fell to my lot to observe a rather large number of nymphomaniac mares in various parts of the state. Sooner or later, it occurred to me, that for one or more of four reasons, something should be done, if possible, to remedy the condition.

Objects in operation.—The four reasons I had in mind were because of:

(1) Exceedingly unpleasant annoyance.

(2) Often dangerousness or uselessness of the animal.

(3) Brutal, inhuman handling of such afflicted animal.

(4) Practically all such were sterile.

Having had frequently to drive livery mares that were nymphomaniacs, I was able to appreciate what a satisfaction it would be if such an annoyance could be overcome.

Also, I had observed several cases when it was unsafe for the women folk to drive the mares and a few where men could not safely handle them. If the condition could be modified, it would mean a restoration of the animal to usefulness and safety.

Again, frequently, I saw the most brutal and abusive kinds of handling such cases. The animals would usually pass from one owner to another in rapid succession with the determination of each new possessor to "kill or cure" because of a condition for which the animal was in no way responsible. If for no other reason than for the sake of humaneness, relief from the trouble should be sought.

Still again, it was noted that such animals seldom, if ever, got in foal, some of which were of splendid conformation and the owners desired to breed if it could be done. It was thought possible the trouble was due to alterations in only one ovary and with the removal of it, the reproductive function might be restored through the other ovary.

Cause of trouble.—As with other troubles, satisfactory treatment depends largely upon locating the cause and its removal. We were familiar with the fact that all "bullers" we had seen slaughtered showed cystic ovaries and we likewise had observed that small lesions of the female organs often produced marked symptoms of a nervous disturbance. Reasoning in this manner, we thought the logical treatment to be in oophorectomy. Some writers had also reported good results. We had observed a few clitorectomies performed, for which we could not see much logic and less in the results obtained. Not having heard or thought of palpating the ovaries through the rectum at that time, we were not positive of finding cystic ovaries till they were located within the abdominal cavity or removed. In only one mule of the thirty-four animals spayed, did we fail to find one or both ovaries with conspicuous cysts. Another mule recently spayed showed only enlarged ovaries with a number of small internal cysts.

Selection of suitable cases.—Suitable cases, of course, should be selected if the desired results are to be obtained. I have not attempted to make a large classification, being

content to operate on any that I was sure was a true nymphomaniac. Some mares, like some geldings, show a few of the symptoms of nymphomania but due to an entirely different cause—probably pure meanness. Such, of course, are not good selections. I tried operating on only one such case, which perhaps had some nymphomania, for both ovaries were cystic, but she was "mean" all the time, day after day, year in and year out. The operation did little if any good, and she broke her own neck kicking loose and running away a few weeks after the operation.

Another class of cases in which we have had two subjects, is hypersensitiveness. One was the mule above referred to without cystic ovary—in fact, they were both undersized, not larger than the last phalanx of the little finger. This animal was a large ($400) animal but so ticklish that usefulness was greatly impaired. Approaching her with extended arm or with harness, she would squat nearly to the ground. The condition was entirely removed by the operation. Another case but not so marked, was in a circus rider's mare—one ovary was cystic. Both ovaries were removed with good result.

Results of operation.—Out of the total number of animals operated upon, we have been able to get consent of only two owners of mare horses to leave the apparently sound ovary for future breeding purposes. The first one did splendidly for several months when it came back to us as bad as ever. On reoperating, the second ovary was found as the first, big as a fist, and it was removed. Since then, the result has been perfect—about two years. The second one, I regret to say, has never been served since operated upon over a year ago. The owner states that the original trouble is entirely gone, that she comes in heat regularly and he expects to have her served this coming spring.

The apparently sound ovary was left in one very obstreperous mare mule, where restraint facilities were very poor. The result was that she was greatly improved for several months, but returned to the former condition. Before we could get to her again, she was sold and lost sight of. We anticipate a later involvement of the other ovary as in the above case. In all of the other cases than above mentioned, marked improvement occurred immediately following the operation or within a few weeks and so far as we have been able to learn, have remained so.

Technique of operation.—As Dr. Merrillat stated in the discussion of Dr. Fulstow's paper at Detroit recently, this is a major operation and should not be undertaken by the novice, especially when unfamiliar with the anatomy of the parts involved and their relation to other structures. Even the older operators will do well to do some recent dissecting of the region before undertaking the operation for the first time,—such, however, is the case in most major operations. In fact, we believe the cause of surgery would be enhanced in most cases if less surgery was attempted by the busy veterinary practitioner and more done by those specializing in surgical work. In other words, we should like to see more consultations held and more assistance rendered between veterinarians.

Instruments.—The instruments necessary for the operation should consist of a knife with sheathed blade, as Colin's scalpel, and an ecraseur with spraying extension, as Dunn's. We like this much better than the ratchet form of ecraseur. However, we should like to see manufactured a special spaying emasculator. It should possess sufficient strength to rapidly cut the ligaments and crush the vessels well, yet not be so heavy as to be unwieldy. Some of the disadvantages of the ecraseur are: The long continued pain produced by the slow crushing and dividing of the ligaments, and with the struggles of the animal, the protruding end of ecraseur catching on or pressing against something and bruising or lacerating some of the parts. All instruments used, of course, should be sterile and the parts introduced, kept so.

Preparation of animal.—Forage should preferably be withheld for a couple of days though we have seldom been able to secure such preparation of the animal.

Restraint.—The most acceptable form of restraint is within stocks and side lines with back and belly straps to prevent rearing and lying down; though most of our restraints, for want of anything else, have been by side line alone with twitch. A tie stall is better than nothing, however. We have observed the operation on the operating table, but it didn't look logical nor good to us.

Anodyne but not Anesthesia with Hemostatic.—We believe some form of anodyne should be employed in all operations. We used chloral, two ounces given in solution through a stomach tube in a number of cases, and although no fatalities occurred, invariably the hemorrhage from the ovarian vessels was very marked. We did not use a styptic, as emetin or atropin, however, as we have done since with local anodynes, which might have overcome that obstacle. Later, we have used codrenin locally for vaginal incision and on the mesovarium and ovarian ligaments where the really painful part of the operation occurs. We have carried in a small cocain syringe with a short dental needle for injecting the ligaments.

Preparation of operative field.—The operative field should be prepared by first having

the rectum emptied by hand, the tail bandaged, the anus, perineum, external vulva and adjacent parts washed with soap and water. If using antiseptics, don't use them strong enough to irritate. Plug the anus with cotton. Before irrigating the vagina with one to two per cent bicarbonate of soda in sterile, preferably warm water, wash the hands with soap and water and an antiseptic. Use sterile, small hose and funnel to irrigate vagina, using hand to flirt the water over the entire surface of vaginal wall. Cause the injected fluid to be expelled and inject again at least twice. Something like a quart of the solution should be used, but twice this quantity should be available.

Vaginal incision.—If it is your first attempt at operation, leave fluid in vagina to assist in ballooning of same before making the vaginal incision just above the cervix of uterus. If the incision is made too low, it will enter the body of uterus. If too high, it is liable to puncture the rectum. It should enter the recto-vaginal pouch. I do not now wait for ballooning of the vagina, but make incision as above indicated, clear through the vaginal wall and the pelvic peritoneum, carrying the incision still further upward and backward through the vaginal wall only. The peritoneal opening can readily be enlarged by the fingers, but in old mares, especially mules, the vaginal wall is often very tough. The opening should be enlarged sufficiently to admit the hand.

Locating ovary.—The hand should then be passed to the right or left against the inside of the respective broad ligament of the uterus and the ovary located at the lower anterior border of the ligament. (If it can be moved in its covering, don't remove, but search further.) When using local anodynes, the ligaments (mesovarian and ovarian) of both ovaries should now be injected if both ovaries are to be removed. If, however, only the diseased one is to be removed, hoping to restore the breeding function, only inject ligaments of the cystic, or enlarged ovary. Unless desired for breeding purposes, both ovaries should be removed, even if only one is apparently affected. Do not attempt to pass directly from one ovary to the opposite, rupturing the smaller (colic) mesentery, but withdraw the hand back to the pelvic inlet and go to the other side of the terminal part of the floating colon, whether for locating the ovary or operating.

Removal of ovary.—After locating one ovary withdraw the hand to the vagina and grasp the chain and anterior end of the ecraseur between thumb and palm of the hand, carry all forward through the vaginal incision to the right or left on the inside wall of the broad ligament at its anterior edge, force the ovary through the loop of the chain, making sure that the whole ovary is through, but including no other structure. Take up the slack and give three or four quick turns to crush the ovarian nerves and vessels. If the animal struggles much, complete the removal of ovary as quickly as possible. After its withdrawal, if the other ovary is to be removed, reinsert the instrument and pass to the opposite side of the inclining terminal part of floating colon.

No after-washing, suturing, or treatment is necessary. Some people put the animals to work at once, but from a humane standpoint, they should have a run at pasture for seven to ten days and handled much as castrated animals.

After once inserting the hand into the abdominal cavity, the operation should be completed as rapidly as compatible with safety. The intestines soon become irritated and edematous, giving the operator a sense of dryness and fullness, which greatly interferes with the ease of locating the ovary and its removal.

An interesting article from the standpoint of comparative pathology is one in *January Medical Times* on "Paralysis of the Recurrent Laryngeal Nerve in Human Beings." Eleven cases showed at autopsy that the lesion was produced by a mitral stenosis.

An editorial in the same journal treats of the effects of spleen substance administered internally. The editor urges greater caution in the use of this product as cases have been reported in which its use was followed by insanity in the patient.

Pharmacal Advance says: "A number of the newer drugs color the urine as though it contained blood. Among these are sulphonal and pyramidon. Others give it a blackish or smoky color—among them being carbolic acid and many derivatives of benzol. Still another group of drugs cause a greenish or yellowish discoloration of the urine which might be mistaken for bile. Among these are bromoform, thallin, naphthol, santonin, buckthorn, cascara sagrada, rhubarb and senna." This coloring of the urine is not usually noticed in herbivorous animals when such drugs are used.—M. R. S.

General Consideration of Veterinary Professional Services

By MART. R. STEFFEN, Potter, Wisconsin.

THE practice of veterinary medicine and surgery to a successful financial end requires the exercise of something besides professional ability.

Because of the fact that veterinary patients are chattels, limited in value according to the returns they bring their owner on his investment, sentiment plays only small part in any effort that may be made to prolong the life of these patients. In fact, it is not usually a question of prolonging the life of the animal. It is nearly always, and wholly so, a question of prolonging the period of usefulness and money-earning power of the animal. Just as soon as it becomes apparent that the serviceability of the patient is going to be permanently impaired the veterinarian desists, or is requested to desist, from further attempts at cure. This automatically limits the expenditure in the direction of veterinary services, and at the same time establishes a line beyond which the veterinarian must not go in levying the fee for professional services rendered. There are, of course, occasional exceptions to this rule. In a canine and feline practice, for instance, the veterinarian's fee is probably more frequently made to fit the clients pocket book. But even in large animal practice, occasional exceptions may occur, when the veterinarian is permitted to resort to procedures involving an expenditure entirely out of proportion to the benefit derived.

It is a peculiar fact that in the practice of veterinary medicine and surgery the aim is as much, if not more, to benefit the owner of the patient as it is to cure the case in hand.

It frequently happens in general practice that the patient could be promptly benefited, or at least relieved. In the case of a human being this would be ample. In an animal practice, however, it would not be ample unless, at the same time, it would prove a good investment for the owner of the animal.

While what has just been said is true and correct from every angle of the business side of a veterinary practice, the veterinarian is in many instances justified in ignoring these principles. Under certain conditions he owes it to himself, and to the profession of which he is a member, to demonstrate to his clientele the existence of at least a spark of humanity in his make-up. He must, if occasion demands, demonstrate this heroically and at times at a loss in dollars and cents.

While the veterinarian is in duty bound to consider the welfare of his client first,—even before that of the patient,—he must not lose sight of the fact that of *all* professions the veterinary profession is the most under-paid. As has already been explained, his fee, with very few exceptions, is automatically limited.

Despite the advances made in the application of anesthetics the practicing veterinarian follows a most hazardous occupation. All casualty insurance societies consider veterinarians a very poor risk, placing them in most instances in "Class D," a class of risk that has to pay the highest rate for ordinary benefits.

The veterinary practitioner, with practically no exceptions, performs his work under every imaginable handicap. His patients are unclean; their surroundings are unclean, cold and inadequate. Despite this, he is supposed to be cleanly himself, to wear good clothes, and to conduct himself in a gentlemanly manner.

His patients resist his efforts; although he may be in the act of saving the life of one of his patients, that patient not infrequently attempts to injure him by kicking, striking, biting, or by falling upon him.

Because of the uncleanliness of his patients and their environment, as well as the impracticability of the application of proper precautionary measures in many instances, the practicing veterinarian must perforce expose himself to the dangers of contamination with most virulent infective matter.

Because of the inadequate housing of his patients, especially in cold climates, he subjects his health to damage from exposure in the proper pursuit of certain duties allied to his calling.

The foregoing are only the most evident discrepancies between the demands made upon the veterinary practitioner and the remuneration he receives.

We have yet to consider that, while communities demand the highest limit of professional ability and expect only expert services of the veterinarian, too few of them accord to him the respect and consideration that he deserves. In a very considerable portion of the land he finds it a difficult matter to rise above the social status of the "horse-doctor."

On top of this remains yet to be laid the fact of his educational expenditures, in both time and money. The prolongation of the course in veterinary science from three to four years is an item not to be lost sight of.

And last, but by no means least, the practicing veterinarian must not lose sight of the fact that he will not be employed steadily; his engagements come irregularly. During the time that he is not engaged his expenses continue, regardless of his inactivity.

Could the veterinarian be assured of a steady, all-day, day after day demand for his services, he could accept a very nominal fee in payment of individual engagements. As it is, he must "make hay while the sun shines"; he must "cash in" his idle moments whenever an opportunity presents itself.

There is to be taken into consideration another fact, and that is that should the veterinarian be incapacitated for a period of time as the result of an accident or sickness, his income stops; he is at once "out of business."

A merchant, a storekeeper, for instance, keeps his business going by the employment of a ten dollar the week clerk, or two. Should the incapacitated veterinarian succeed in obtaining the services of an able substitute during his period of illness, he is usually compelled to pay an exorbitant salary for his services. Far more commonly his nearest competitor reaps the harvest of the occurrence.

The foregoing are a few of the considerations that have a bearing upon the levying of fees for veterinary services in a general practice. We will proceed to consider specific instances of charging, as well as some phases of the veterinarian's conduct in earning the fee charged.

(To be continued)

Abdominal Hernias*

By C. A. CARY, Auburn, Alabama.
Dean of the Veterinary Department, Alabama Polytechnic Institute.

Symptoms.—In acute ventral hernias there may be a gravitating edema, or a fluctuating, reducible or non-reducible enlargement. In the early stages the enlargement may exhibit inflammatory symptoms of fever and sensitiveness. If the intestinal content of the hernia is strangulated there will be signs of more or less constant pain; the pulse may be accellerated, the animal may move about in a restless manner and assume various positions in search of relief from pain.

In non-strangulated hernia the gravitating edema may gradually disappear and the well defined reducible hernia may become definitely outlined. By careful compression the hernial contents may be forced into the abdominal cavity and the size, shape and entire outline of the opening (ring) in the abdominal wall may be determined. Sometimes in a large hernia it may be necessary to put the animal upon its back to reduce the hernia. However, in some instances a rectal examination may permit one to outline the abdominal opening. Rectal examination is always helpful in rupture of the prepublic tendon.

Anatomy of Abdominal Walls

(a) Skin
(b) Fascia
(c) Panniculus
(d) Linea Alba
(e) Tunica abdominalis
(f) External oblique
(g) Internal oblique
(h) Rectus abdominalis
(i) Transversalis

Chauveau says "the lateral and inferior walls of the abdominal cavity are formed by a wide musculo-aponeurotic envelope and results from an assemblage of four pairs of large membranous muscles arranged in superposed layers. Reckoning from without inwards, these are designated as the great or external oblique, the small or internal oblique, the great straight, and the transverse muscle. Covered outwardly by an expansion of yellow fibrous tissue, *the tunica abdominalis,* and separated from the opposite side by the *white line* (*linea alba*), a median raphe extending from the sternum to the pubis. These muscles support the intestinal mass, and by their relaxation or contraction adapt themselves to the variations in volume these viscera may experience."

*Read at First Annual Meeting of the Southeastern States Veterinary Medical Association, Atlanta, Ga., Dec. 27-28, 1916.

Kinds of Hernias

(a) As to location.
- Ventral
- Prepubic
- Umbilical
- Inguinal
- Scrotal
- Crural
- Perineal or Pelvic
- Diaphragmatic

(b) As to condition
- Reducible
- Irreducible
- Strangulated
- With Adhesions
- Without Adhesions

Causes of Hernias

The muscular or aponeurotic tear or rupture may be produced by violent muscular contraction, by external trauma, by internal pressure (possibly) by predisposing muscular degeneration and by a combination of external or internal pressure and violent or strong muscular contractions.

DIAGNOSIS: Ventral hernia may be confounded with a sero-hematoma. Upon two occasions I placed animals (mules) upon the operating table preparatory to doing a ventral hernia operation and upon removal of the excess of serum I found there was no hernia. These were both cases of sero-hematomas. The large sacs of serum had been present for four to eight weeks and no positive opening could be found. It is, however, possible that a small opening may have existed in the beginning or at the time of the injury. In the edema stage, wait until it disappears and the hernial sac and ring may be definitely outlined or located.

Prognosis depends upon:
- (a) Age of animal
- (b) Condition of animal
- (c) Size of sac and ring
- (d) Outline of ring or abdominal aperture
- (e) Location of ring
- (f) Sex of animal.

(a) Young animals, as they grow, are liable to natural recovery from scrotal, inguinal and sometimes umbilical and ventral hernias; and they are also favorable subjects for all kinds of surgical or operative treatment.

(b) Thin or relatively lean animals are safer for operative treatment than fat ones. Thin, lean abdominal wounds heal more safely and quickly than abdominal walls containing thick layers of fat.

(c) A small ring and a small sac are more favorable for operations than large rings and sacs because there is less tissue involved, less danger of infection, less time required in the operation, less danger of stitches tearing out, less difficulty in bringing the edges or borders of the ring together and less space to fill up with granulating tissue.

(d) Outline of ring or aperture is extremely important in operative procedure. A small oval or a large narrow opening can readily be co-adapted by sutures and sometimes by clamps. A large, broad or circular ring makes it difficult and often impossible to bring the borders together and thus obliterate the aperture by an ordinary operation. Generally such cases require difficult, tedious and dangerous plastic operations. The most difficult type of ring to treat by operation or otherwise is the wide, ragged and irregular aperture. Fortunately this is rarely found.

Other conditions being equal, a hernia in the anterior parts of the inferior abdominal wall is more favorably located for operative treatment. To some extent, internal pressure may be slightly greater here; yet the great advantages of this location are the relatively favorable accessibility for the operation, for pressure bandaging, the freedom from urine and fecal contamination and dependent drainage. Hernias in the posterior part of the lower abdominal wall are inaccessible, difficult to pad or to apply pressure bandages, readily contaminated and hard to keep clean.

(f) Hernias in mares, especially in the posterior regions of the abdomen are more readily and easily pressure bandaged; they can be kept clean and free from urine. The sheath and penis of the gelding or stallion or bull or steer or dog are hindrances to pressure bandages and the urine from males is always a source of danger of contamination. Strangulated, inguinal and scrotal hernias are more common and intractable in stallions, bulls and geldings.

Methods of Treatment

The natural or waiting or growing treatment will suffice in young colts and calves in some cases of scrotal, inguinal and umbilical hernias. But in many cases a suture operation will save time, feed and worry by hastening the repair.

Clamps, ligatures, blisters, acids, rubbing, trusses and bandages may suffice in some hernial conditions. Generally speaking they may be applicable in small hernias in young animals, but in nearly all large chronic or old hernias they are contra-indicated. In reducible hernias where the operator can get at them within one to three hours after appearance of the rupture, a tight, broad bandage will do more good to fix the abdomen; prevent movements; co-adapt the raw edges and permit primary union than all the wooden trusses ever made. Sometimes it may be necessary to place a broad, flat layer of absorbent cotton or gauze over the hernia and then over this the broad bandage. This bandage should be

kept tight and in place for ten days or longer, and the animal kept standing and on small, laxative rations. The bandage or truss is of no value or is contra-indicated when there is edema or fluctuating enlargements and in old standing cases.

Suture Operations for Ventral and Umbilical Hernias

When the hernial aperture is small or long and narrow and in a favorable region for operation and for pressure bandaging, the ordinary suture method should be employed. It is relatively safe and when properly done it usually results in permanent repair.

INSTRUMENTS REQUIRED: One or more sharp scalpels; a probe-pointed curved or straight bistoury; four to six artery forceps; two vulsellum forceps; four to six large, full curved or half curved needles; plenty of No. 25 sterile silk braid, or large silk tape; some large, sterile cat gut; an abundance of sterile cotton; plenty of gauze; one roll of absorbent cotton; four broad, many-tailed, sterile bandages and six to eight side lines or hobble ropes and casting ropes or harness.

The animal should be prepared by withholding all or nearly all feed for two to six days. Get the alimentary canal empty and the abdomen small without purgatives. The day previous to the operation clip, or clip and shave the skin over and around the hernia; wash; disinfect and apply absorbent cotton and a bandage to be retained until the animal is cast and fixed and anesthetized for the operation.

If you have an operating table to which the animal can be fixed and turned upon its back, use the table, providing it is where you can get good natural or artificial light. If such a table is not available select a grass plot as a place for operating. Secure four to six posts or pieces of timbers 6x6 or 6x8 twelve feet long; put at least four of them three feet into the ground and firmly tamp them. Each post is placed at the corner of a rectangle four or five feet long by two to two and one-half feet wide. Spike a piece of 2x6 eight feet long on each side at the top of these posts and short pieces from side to side.

The prepared animal is placed upon the table or cast; totally anesthetized with chloroform or chloroform and ether or the A. C. E. Mixture. As a rule, never depend upon local anesthesia. Place the animal on its back on the table and elevate its hind parts, especially if the hernia is in the posterior abdominal region. If the improvised stocks are used, place the animal between the posts with the head down hill; pull up the limbs with hobbles and ropes running over the horizontal pieces at or near the top of the posts; protect and pad the withers, back, croup and head with sacks well filled with straw or hay (wet these sacks to keep down dust). The hind parts may be elevated or raised if necessary by using sufficient number of wet sacks.

The operator should have an assistant to give the anesthetic, another to assist on the operation, another to pull up hobbles and ropes and look after the sacks and padding, and another for emergencies.

Remove the bandage and absorbent cotton; wash and disinfect a wide area around the hernia; apply antiseptic cloths or pads over the feet. Cut the skin parallel to the long axis of the hernia. Sometimes I cut obliquely across the long axis of the hernia to avoid surface vessels. Dissect the skin from the sac down to the abdominal wall and then dissect the sac from the wall to the ring of the hernia. Avoid cutting into the sac and do not cut away skin, no matter how large the sac or hernia.

Carefully open the sac at or near its fundus and avoid cutting an intestine or any viscera that might be in the sac. If adhesions are found, carefully separate the viscera from the sac or if no adhesions are present, enlarge the opening in the sac, push the hernial contents into the abdomen and let the assistant retain them there by pressing on a pad of sterile gauze.

The operator should now note the shape, outline and condition of the ring. If the aperture is small and narrow and the borders can be readily brought together, cut away all of the sac down to the ring, scarify or rub the borders of the ring and place large No. 25 braided silk sutures 12 to 18 m.m. apart. Place all of the sutures before tying them. Begin tying at the ends and pass toward the middle of the long axis of the aperture. If the ring is rather broad, three inches or more, leave one-half to one inch of sac along the broad part on each side of the aperture. At the ends of the aperture very little if any of the sac may be left. Now stitch as before and always take deep sutures, one-half to three-quarters of an inch beyond the fibrous ring and entirely through the abdominal wall (except the skin). Let the raw edge of remnant sac come into contact with the same from the opposite side of the aperture and pull up stitches so that the edges of the remnant sac will touch or come together and crumple or be a little rough and uneven. In placing stitches avoid pricking or penetrating intestines with the needle. A little fecal matter means a center of infection and the loss of an animal. Also, be careful to exclude all intestines and viscera from the stitches when they are pulled up and tied. I do not use mattress or quilled sutures because they are too difficult to keep aseptic or clean.

In case the aperture or hernial ring is very

large after dissecting out the sac as previously directed, cut open the sac along the line of the long axis to each end of the ring. If the aperture is in the flank, the sac should be cut from above to below. This divides the sac into two parts and each half remains attached to the border of the ring. Each half of the sac is now cut so as to nearly reach the opposite side of the ring. One-half is first stitched to the opposite border of the ring with large fourteen-day cat gut or it can be stitched with large No. 25 braided silk by passing the needle through the abdominal wall one-half inch from the ring on the opposite side, then through the cut border of the sac from the other side and then out through the base of the sac near the ring. All of the stitches can be placed before drawing and tying them. This pulls the sides of the aperture toward each other and the tough fibrous sac fills the remaining opening. Next the other flap is pulled over and stitched to the ring on the opposite side with No. 25 silk sutures. This places a double layer of thick, tough, fibrous sac over the hernial opening and the opening is decreased in size. Care should be taken to exercise aseptic precautions since the sac flaps will be exposed for some time and must be handled in order to fit them to the opening.

In small hernias, the small sac after it is dissected from the skin may be pushed into the abdomen and the sutures may be passed through one side of the ring and then over the outside of the sac to and through the opposite ring border. After thus placing sufficient sutures they are pulled so as to bring the opposite borders together and then securely tied. Asepsis should be carefully observed here lest an infected sac be forced into the abdomen and there retained as a focus to terminate in an abcess or septicemia or peritonitis.

One thing that will be rather strikingly impressed on the operator is the toughness and thickness of nearly all ventral and umbilical hernia sacs. This is always the case of hernias in horses and mules of long standing.

After stitching up the ring, stitch up the skin and if baggy, do not be alarmed. Let it be. Before the animal rises, apply a large pad of absorbent cotton and then a broad, many-tailed bandage. Pull this bandage rather tight. After the animal gets up, apply a second bandage over the first one for safety and further protection. These bandages protect the seat of the operation and immobilize the abdomen. Leave these bandages on for ten to twelve hours. Remove them and the cotton and let the bloody serum escape between the stitches in the skin. If necessary, cut one or two of the most dependent skin stitches and remove all blood clots. Repeat the dressing once every twelve hours for three or four days; then dress once a day. Use sterile water and cotton in washing and a little tincture of iodin may be used in the water; just enough to color it. One set of many tailed bandages may be washed and boiled and disinfected while the other set are in use.

Keep the animal on his feet and give only water for one to two days and then feed a little scalded oats or bran. Feed little or no hay for ten to fifteen days. In fifteen to eighteen days the silk sutures may be removed. The skin will have healed and it may be necessary to cut it open again. Some sutures will suppurate and be easily located but rather hard to remove. With a twitch on the nose of the animal and one front foot lifted up, the operator feels for the stitches with the finger of one hand, and grasps the stitch with the forceps in the other hand. The stitch is cut with a hook castrating knife or a probe-pointed tenotomy knife. When the stitches are placed, they should be counted so that when removing them one will know how many to remove. I have removed a few suppurating silk sutures one year after the time they were placed. In case sutures become covered with granulations and no not suppurate, let them alone. However, most of them will suppurate and show up in time and they can be thus located and removed.

It is essential that the operator remember that there will be free drainage from the abdomen when the hernia or aperture is located in any dependent part of the abdomen. No drainage tube or gauze is required or advised. If the operation is upon the lateral wall then there may be some internal drainage and that cannot be overcome unless adhesions wall off the area involved. The fact is temporary and sometimes permanent adhesions wall off the hernial region following the operation and thus peritonitis is often prevented.

As a rule, after two or three months, the repair or scar tissue is stronger and less liable to be torn than any other part of the abdominal walls.

Space does not permit the handling of other kinds of hernias in this article. Strangulated inguinal or scrotal hernias demand immediate attention and often cannot be safely or permanently relieved in stallions or other whole males without castration. Prepubic, most perineal, diaphragmatic and crural hernias are inoperable. Inguinal, scrotal, ventral and umbilical hernias of dogs and swine are amenable to radical operations.

Anthrax (Charbon)*

By W. H. DALRYMPLE, M. R. C. V. S., Louisiana State University.

ANTHRAX or charbon is, as we all know, a very old disease, and its occurrence and devastations have been recorded since very early times. It would be of little interest, therefore, to enter into an academic discussion of the subject on this occasion, as that may be obtained from text-books, but rather confine our remarks to certain phases of a more practical nature concerning its more effective control, and, if possible, the eradication of the infection, although I am afraid this may not be so easy of accomplishment as might appear on the surface.

Of course we are all aware that there is one and only one cause of this disease, viz., its own specific organism—the Bacterium anthracis, sometimes referred to as the bacillus of Duvaine; but for a knowledge of its life-cycle, namely from the spore to the rod, and vice versa, we are indebted, I believe, to the late Prof. Robert Koch.

It should be borne in mind, therefore, that whatever other measures we may adopt, as accessories, if you will, in the fight against charbon, our chief effort must be directed toward the destruction of the infection, which is the germ itself in one or other of its stages and through which the disease is perpetuated and permitted to spread through the medium of various agencies.

As a concrete statement, I may say that the infected tissue in anthrax is the blood, which, of course, premeates the entire body, the disease now being classed as a bacteremia, to differentiate it from what we know as septicemia, in which class anthrax also, was once placed. However, in order to prevent confusion, evidently, the term bacteremia is now employed in the case of specific diseases where the organisms are found in the blood, as the one under consideration, and septicemia, to the condition in which the septic organisms, proper, only, are found.

I believe we would get a much more intelligent grasp of how to more effectually contral anthrax, if we would only get the fact impressed upon our minds that the blood is the infected tissue, and realize that any agent which may come in contact with that fluid, and is capable of moving, or being moved, from one place to another, while it may be some inert substance, or not, itself, susceptible to the disease, may be the carrier of anthrax infection. Or, in other words, we need to realize that the control of anthrax infection has mainly to do with sanitary science, aided by the various accessory means employed to afford protection to the animal. But while prophylactic agents in use, for the protection of the individual, are of the greatest importance, as adjuncts, the best results will never, in my humble judgment, be secured, until combined with the strict enforcement of sanitary procedure, and the hearty co-operation of everyone interested, in order to destroy the infection, which, in reality, is the main object to be attained.

As I have already suggested, the blood, as the chief source of the infection, it being surcharged with the specific organisms of the disease, it may be of interest to note a few of the agencies through which the virus may be carried, and which has been verified by actual tests.

In some diseases, such as piroplasmosis or tick fever, malaria, yellow fever, etc., which are caused by protozoa, the organisms are spoken of as two-host germs. That is, they require the bodies of two hosts, or individuals, in order to be able to complete their life-cycles.

In the case of tick fever, for example, and the same application may be made in the case of the other two diseases mentioned, with their mosquitoes, the common cattle tick is an obligatory host of the tick fever germ, without which the latter could not complete its cycle of existence, and would consequently die—a condition we are earnestly endeavoring to bring about in our Southern campaign of tick eradication.

In the bacterial diseases, however, the organisms, which belong to the vegetable kingdom, do not seem to have to depend upon secondary, or obligatory, hosts, but are transmitted in more or less mechanical ways.

The common house-fly, for example, which, in walking over typhoid-laden-feces, does not require to take the Bacillus typhosus into its own body to be able to transmit the fever to the individual, but may do so in a purely mechanical way by contaminating the food of the individual through the medium of its infected feet.

And so it is in the case of anthrax infection; a secondary host is not essential in the same sense as in tick fever; and whatever the transmitting agent may be, the transmission, itself, is of a purely mechanical nature,

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just as one would bring about contact by artificial means.

If looked at from another point of view, however, it may be considered that any of the media through which anthrax may be transmitted, is, in reality, essential for the transmission of the infection; but not in the sense of any one being specifically so, to the exclusion of all others, as is the case with the tick in Texas fever.

During certain seasons which afford favorable climatic conditions, anthrax is usually more prevalent where previous infection had existed; and when such occurs, it is believed to be due, not only to the lack of sanitary care of the victims and their surroundings, but in large measure, also, to the activities of certain living agents which come in contact with the virulent tissues, and, are therefore, capable of obtaining and distributing the virus. These may be carrion feeders, in the form of animals or birds, or insects of the blood-sucking species. Such have been suspected for some time, but I am not aware of any systematic investigations having been conducted, until the past few years, to verify the suspicion, although referred to in textbooks in a general sort of way.

About four years ago some experiments were undertaken by Dr. Harry Morris, bacteriologist and assistant veterinarian of the Louisiana station, at Baton Rouge, to determine, if possible, the likelihood of anthrax infection being carried by the following living agencies: The buzzard, dog, cat, hog, opossum, rabbit, guinea-pig, and the chicken, with the following results briefly summarized:

Anthrax was *not* found in the feces of the buzzard after eating spores, but the infection *was* obtained from the feet, beak, and vomitus, after feeding upon an anthrax carcass, or upon anthrax flesh.

It was found that anthrax spores were *not* destroyed after passing through the digestive tract of the dog, and were found in the feces as long as six days after anthrax material had been fed.

The feces of the hog also contained the infection for a period of five days after the ingestion of spores.

The feces of the cat gave similar results, the infection passing out during four days after eating anthrax spores; and it was also found that the organism was *not* destroyed after having passed through the alimentary canal of the opossum.

Susceptibility to anthrax, through ingestion, was also found to be low in the case of the rabbit and guinea-pig, but spores *were* found in the feces; and the same may be said with reference to chickens, anthrax infection being found in the feces for twenty-four hours after being fed spores.

Here, then, we have a considerable list of living creatures, the majority being carrion-feeders, which, while of more or less low susceptibility to the disease themselves, are, nevertheless capable of scattering infection far and wide through the medium of their infected feces; and in the case of the buzzard, through its infected feet, beak, and vomitus, which, to my mind, teaches a most important sanitary lesson.

The question here obviously arises as to where, under natural conditions, these carriers are likely to obtain the infection. Is it not mainly, if not solely, from the infected anthrax carcass, with its seething mass of charbon organisms? Personally, I believe it is; and I further believe, that neglect to sanitarily dispose of our anthrax carcasses in the past, and even now, has been the cause of such fatal and widespread infection, through the medium of agencies such as I have mentioned and in the manner I have attempted to describe.

But there are still other living agents capable of spreading the infection, and to which I would further direct your attention, viz., insects of different kinds, but more particularly the blood-suckers, although those with suctorial habits, only, may also play their part.

However, in either case, the work of transmission is performed, as before mentioned, in a mechanical way.

During the past year, or so, Doctor Morris, to whom I have already alluded, has been carrying on some tests with the view of substantiating the belief that certain insects were responsible for the transmission of anthrax infection, and his results will shortly be published in bulletin form. However, I am fortunately in a position to give here a brief summary of his findings up to the present time.

The experimental insects used were the horn-fly, some of the tabanidae, or horse-fly family, and two species of swamp mosquitoes.

In order to secure a source of infection, guinea-pigs, rabbits and sheep were inoculated, either subcutaneously or intra-abdominally, with anthrax spores. Specially-prepared cages were used, and from 100 to 300 horn-flies placed in each cage, the top of which was composed of fine mesh wire screening. An infected guinea-pig was then secured over the top, so that the flies could feed upon it from the inside of the cage. After the flies had been permitted to feed for a time (one minute) upon the infected blood of the pig, the latter was removed, the screen top sterilized with bichloride solution, and a healthy pig secured in the place of the infected one, when transmission occurred.

It was found that the nearer to the point of death of the infected pig, the larger the percentage of infections occurred. If within the last hour before death, about 60 per cent of the experimental pigs would succumb to anthrax. But even four hours before death, inoculations were obtained.

An interesting observation here made was that if the flies were allowed an interval of twenty minutes, or so, between feeding upon the infected and the healthy pigs; or, in other words, if they were given sufficient time in which to clean their contaminated proboscides, inoculations were not made; which is a further verification, I think, of the mechanical-transmission claim.

Anthrax organisms were not found, however, in the feces, or "specks" of horn-flies that had been feeding upon anthrax blood; although, in the case of the common house-fly, after feeding upon infected material, the feces were contaminated, as shown from subsequent cultures made from them. The experiment with the house-fly was on a previous occasion to those I have been discussing.

It was also found that the horn-fly would not feed upon the carcass of a guinea-pig for any length of time after death had taken place, although a few transmissions were obtained from 5 to 10 minutes after that occurrence. This may possibly be accounted for by the more rapid cooling of the blood in the body of such a small animal, which might not hold good, however, in the case of a larger one, under natural conditions, where the body-heat would be retained for a greater length of time.

In one of the experiments an infected sheep was used, the flies being permitted to feed upon upon it for one-half minute. Healthy guinea-pigs were then immediately secured on cages, and kept there for a period of one minute, with the result that out of 9 pigs used, 8 of them died of anthrax.

In some of the earlier experiments the hair was removed from the abdominal surface of the pigs, but, in order to simulate natural conditions as closely as possible, others were left unshaven, with the result that as many infections were obtained with the hair on, as with it off, which I consider is an important observation, as it shows that the flies are capable of transmitting infection under natural conditions.

It is difficult to get horse-flies to feed in captivity, but in one experiment, with the green-head horse-fly, it was found that infections could be procured by the bite of a single insect; and that as many infections were produced with this insect as with the horn-fly.

Further, stains were made from the drop of blood escaping from the puncture in the skin of the pig produced by the proboscis of the fly; and in each case, anthrax organisms were found on microscopic examination.

This would suggest another source from which infection could spread by means of suctorial varieties of flies which do not pierce the integument.

It may be added that anthrax infection could not be found in the specks from the horse-fly.*

Another part of these experiments was devoted to mosquitoes to test the possibility of their being transmitting agents. Two species of swamp mosquitoes (Psorophora) were collected, and after having gone through the routine of infection from guinea-pigs, transmissions were obtained in from four hours before, until ten minutes after, the death of the pig. About forty per cent of the susceptible animals were inoculated when the diseased pig was near to the point of death, and a few transmissions were secured a short time after death.

The feces of the infected mosquitoes did not seem to contain anthrax organisms.

The work that has already been done in this connection goes far to establish the fact that the living agents in the transmission of anthrax infection are quite numerous, and, doubtless, there are many others that have not, as yet, been investigated.

However, it serves to emphasize the difficulties confronting the veterinary sanitarian in his effort to control this disease, especially if the main source of infection, the anthrax carcass, has not been effectually destroyed.

In this discussion I have confined myself to some of the living agencies responsible for the spread of this disease, and have left out numerous others that might be termed inert, or, in some cases, of an exotic nature. I refer here to running water that has been contaminated; instruments and utensils; infected feeding materials; infected fertilizers made from diseased animal tissues; infected hides, leather, hair, wool, etc. But whether the carrier of the infection be alive or dead, it all points to some primary source, and that source is, mainly, if not solely, in my judgment, the germ-laden anthrax carcass left carelessly exposed, and from which the disease may be carried and spread through the medium of the various agencies which come in contact with its infected tissues.

But to digress just for a moment, if you please. Do we not find, all through nature, the perpetuation of species through more or

*In the current number (January) of the American Journal of Veterinary Medicine, Dr. Frank C. Hershberger reports anthrax being transmitted to both animals and people in Manchuria, China, by the bites of members of the Tabanidae family, or horse-flies.

less mechanical transmission, a great part of which is, fortunately, economic; while in other instances it is pathogenic, so far as we are concerned, at least, as in the disease under consideration?

Is not the pollen of the higher plants carried, largely, by insects which feed upon the nectar and transfer the pollen grains to the generative organs of the female plant, in order to perpetuate the species? And may not a similar question be asked regarding birds as carriers, and in some cases, the wind, etc.

This is, of course, an economic provision of nature, and one that is beneficial to man. But a similar condition also occurs in the lower forms of plant life, which are prejudicial to both the higher plants and to animals, as illustrated by the various molds or fungi, and the bacteria, which perpetuate themselves, and flourish at the expense of their hosts, unless resistance in the latter should be sufficiently powerful to overcome their attacks. The spores of the fungi have their carriers, in the form of insects, the wind, etc.; then why not the bacteria, which belong to the lowest form of vegetable life?

Sometimes we hear it suggested that outbreaks of an infectious or contagious disease are sent to us as "visitations of Providence" as a means of punishment for some wrongdoing, creating the impression that germ life arises *de novo*, if you will, or had some sort of mysterious spontaneity of origin to be called into being on special occasions, or to meet certain conditions. This, however, is the sentimental, or I might say superstitious, aspect of the matter. Nature, on the other hand, has a very different explanation to offer, viz., that these lowly forms of bacterial life have their part to perform, just as the higher forms have theirs. Or, in other words, all through her domain, Nature endeavors to maintain an equilibrium, through what might be termed a system of parasitism, with one form existing at the expense of another, and so forth; and while the higher creatures suffer, and succumb to the invasion of the lower parasitic forms, such as the one we are discussing, as well as others, it is Nature's way by which the latter are able to reproduce themselves and maintain their existence.

At the same time, while it is well that we should realize these facts, it is of course essential, for our own protection, that we wage an incessant and destructive warfare, with the view of interrupting Nature's plan, in this connection, in order that we may gain the mastery over, and win the battle from, these microscopic enemies, which, while endeavoring to live and flourish themselves, are, at times, so exceedingly costly to us.

It is chiefly to consider and suggest ways and means by which to gain this mastery, that is the occasion for our discussion of some of the agencies by, and through, which these minute, but deadly, forms are able to, and do, carry on their decimating work when left unchecked.

It will be necessary, of course, to allude, also, to the protective agents used in assisting to combat the ravages of the anthrax organism, although unnecessary, I think, to enter into their history, as that must be more or less familiar to all. Suffice it to say, that the anti-anthrax vaccine prepared by the Pasteur method, and introduced by that great French scientist, has been in use in my state, and I presume in Mississippi, also, for over twenty years, with varying success, which, variation, may have been due to several factors, such as lack of potency in the vaccine itself; lateness in its administration; its use in animals already infected; exposure to infection before animals are protected; the use of the vaccine by persons wholly incompetent to deal with it, etc.

But, so far as my observation has been, fairly good results have been secured when the vaccine has been potent and reliable; when it has been used sufficiently early in the season to allow time for immunity to have been reached; when it has been used regularly every season where the infection is likely to have been more or less permanent; and when its administration has been in the hands of those thoroughly familiar with it, and, at the same time, with the dangers and untoward results attending its misuse, or mal-administration, as it is, or is presumed to be at least, the virus itself in attenuated form.

Besides this attenuated virus, usually spoken of as the Pasteur vaccine, there has been more recently in use an anti-anthrax serum.

It seems that we are indebted to Dr. Marchoux, of the Pasteur Institute, in France, and to Sclavo, in Italy, for the first investigations bearing on the possibility of obtaining a serum possessing anti-bacterial properties, they having demonstrated that rabbits and sheep immunized against anthrax were capable of standing large doses of virulent culture, and that the serum of those animals could, in certain cases, protect a rabbit weighing a little over four pounds. This work was, later, verified and confirmed by Sobernheim.

What is known as the Sobernheim method is the simultaneous use of vaccine and the protective serum. That is, the vaccine is injected, subcutaneously into one side of the animal, while into the other side is injected the serum.

The advantages claimed for this method

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Possibilities and Limitations in Control of Abortion*

By C. J. MARSHALL, State Veterinarian of Pennsylvania.

FOR a number of years the state livestock sanitary board of Pennsylvania has received complaints from herd owners in reference to abortion, sterility, etc. The board has been able to furnish but little assistance, yet it has given much attention to these diseases and all the advice and help possible. Considerable work has been done in the laboratory on the serological and bacteriological tests, and from a diagnostic point of view there has been some benefit derived from them. It has been observed for a number of years that abortion and tuberculosis thrived best and are the most difficult to eliminate in large herds where unprofitable animals were constantly being replaced by new purchases. It is quite unusual to find such herds free from tuberculosis, abortion, granular vaginitis and sterility.

About a year ago our board requested Dr. W. L. Williams to give a demonstration of his method of diagnosis and plan of treating abortion and sterility in one of our large herds where both conditions were prevalent. This demonstration was given before several agents of the board and has been the means of stimulating a great deal more interest in these diseases. We feel that Doctor Williams is doing a noble work and that his careful methods of diagnosis and his plan of treatment are extremely useful to veterinarians and breeders. Two of our agents who had been practising for a number of years in dairy districts were put on the subject of studying abortion and sterility. They did work in abattoirs and in herds where the diseases were known to exist. Seventeen large breeding herds were turned over to the board for treatment and study. These herds were carefully examined, and whenever possible demonstrations were given before the local veterinarians. About twenty-five of the best veterinarians in the state have shown an interest in the work and are carrying it on to the best of their ability in their private practice and reporting their results to the board. Unfortunately one of our agents gave up his position for something better, but Dr. W. H. Ridge is going on with the demonstration work. Considerable valuable information has already been gained by the work done, and the board feels fully repaid for the expense and effort that has been made.

In the small herds in the rural sections of the state where animals are seldom purchased, very few cases of abortion or sterility are reported. Complaints have been confined principally to large pure-bred herds. In one such herd abortion was frequent up to five years ago. There has been no abortion or sterility in this herd for the past two years. It is believed that the good results obtained were due to isolation, cleanliness and disinfection and that equally as good results may be obtained in any well-equipped herd with the assistance of the average veterinarian. From the laboratory tests we know that there are animals in this herd still afflicted with this disease. Nearly all have granular vaginitis, yet there has been practically no trouble from sterility. The calves have been raised on unpasteurized milk, kept isolated from the old members of the herd until they were safely in calf, and were brought into the herd after they had dropped their first calf and became safely settled with the second. No vaginal or uterine injections were given to those that calved normally. The stables were carefully disinfected once a week and the posterior portions of the animals were carefully washed with a disinfectant every day from the time of normal calving till they were considered safely in calf again. Practically the same treatment was adopted in another large breeding herd, yet a few abortions have occurred with the second crop of calves.

From observations made in these two herds, it would appear that contagion is not carried over from the time of drinking milk. An interesting practical experiment was tried on one of those farms with twenty heifers, all of which had been raised until the weaning period on the milk from animals, some of which were known to be infected. When ready to breed, they were divided into two lots of ten each. Lot No. 1 was placed in a disinfected stable in which no abortion had ever occurred. This stable was located about a mile from the regular dairy barn and was attended by a man who did not work around the regular herd. Lot No. 2 was placed in the dairy barn in contact with the regular herd and handled as a part of it. Each group was bred to a separate bull. The bull used on

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the first group had not been or was not used on any other members of the herd. The common herd bull was used on the second group. Lot No. 1 dropped 100 per cent healthy living calves, while in lot No. 2 there was 90 per cent abortions. It is reasonable to suppose in this case that the infection was not due to feeding infected raw milk. The bull was given an antiseptic wash before and after service on each group.

There seems to be some reasons for believing that uninfected pregnant animals are reasonably safe. We believe that it is possible to control abortion in good herds that are kept in modern, sanitary stables where most of the animals are raised on the farm, especially where the owner is intelligent and interested and is given the proper veterinary assistance. The task of controlling abortion in such herds is entirely too much for the average dairy farm or the veterinarian who has never given the subject more than ordinary attention. We believe that no good will be accomplished by the use of vaginal douches as applied by the herd owner of the average veterinarian, because it does not reach the seat of trouble. In many cases such injections do more harm than good. Good results will be obtained in giving the uterus proper treatment. In former years it was the custom to advise owners not to breed aborting cattle for three or four months after abortion and that vaginal douches with mild antiseptics should be given as long as there was a discharge. It is believed now that this advice was wrong and that much more good will be accomplished by two or three applications of the proper remedy directly into the uterus soon after abortion and then breeding immediately. The treatment must be given by one who has been properly trained and had the necessary amount of experience. Many cases of sterility will occur in animals that are not bred for three or four months, no matter how they are treated, while if bred early they may conceive and carry their calves to full maturity.

So far as controlling abortion is concerned, there is no medicine or remedy known that will prevent it. No good will be accomplished in the treatment of sterility by the inexperienced or with the common operations that have been too often used, such as opening the os by forcing a sharp stick or the finger into it, or by an inexperienced person in attempting to rupture ovarian cysts. In nearly all cases of pyometra and endometritis that have been investigated by agents of the board, it was found that these diseases were brought about by improper treatment. Very good results may be obtained in most cases of sterility that are due to such conditions as pyometra, endometritis, etc., if properly treated.

Very little will be accomplished in trying to eliminate abortion by selling those that abort. They may not recover from the disease or cease to be spreaders, but there is no doubt in our minds but that a very large part of them will not abort after the first time. Many of the sterile animals may be rendered useful as breeders if properly treated. The proper form of treatment cannot be outlined to cover all cases, but should be left to the good judgment of the man who makes the examination.

We make the following conclusions:

(1) From practical observations, we are satisfied that it is useful in herds where the disease has occurred and where susceptible animals are kept, to disinfect the stable frequently, once a week at least, with some antiseptic that has been approved by the Bureau of Animal Industry or by some other authentic source.

(2) The posterior quarters of all susceptible animals that are not pregnant should be carefully washed once each day with a suitable antiseptic.

(3) Careful observations should be made of each susceptible animal during the period of pregnancy. If any symptoms of abortion appear in an animal, or it accidently aborts before the symptoms are observed, it should be removed immediately to an isolation ward and kept there as long as there is any discharge. This is the proper time to treat the uterus, and the treatment should be applied by a person who is familiar with the operation. Three treatments, a week apart, with the proper remedy and properly applied, are usually sufficient. The animal should then be bred as soon as possible.

(4) It is an accepted fact that the disease is spread principally through the digestive tract—the infected material originates in the genito-urinary tract of infected cattle.

(5) The gutters are especially dangerous. They should be carefully cleaned and disinfected each day. Extreme care should be given to prevent the use of brooms, forks, shovels and shoes of men from carrying infection from the line behind the cows to the feed or feeding floor. Especial attention should also be given to the prompt removal of the aborted fetus, the fetal placenta, and manure which has become infected. This should be rendered aseptic as soon as possible or spread on the fields and ploughed under. The bull should be properly disinfected before and after each service.

The possibility of controlling abortion in herds is not an unreasonable proposition. It can be done by the proper application of the information already at hand. The limitations depend entirely upon how well these facts are known and how thoroughly they are applied.

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DRUG PRICES TO GO MUCH HIGHER

Because of the diplomatic break with Germany and the likelihood of further difficulties, the American Association of Pharmaceutical Chemists strongly urges its members to stock heavily at once narcotics, quinin and strychnin. It is advised that a supply sufficient for at least six months, and better, sufficient for a year, be laid in.

In case the United States becomes involved in war, it is predicted that acetanilid, bromids, iodids and mercurials will advance in price markedly. If the United States does not become involved in the war, potash salts, salicylates and the whole phenol group are due for a steady decline in price. If, as seems more than probable, we do make extensive preparations for military operations, the prices of these latter drugs and of glycerin will shoot skyward.

A NEW M-M ASSOCIATION PROPOSED

The executive committee of the Missouri Valley Veterinary Association proposed the following changes in the constitution to be acted upon at the next meeting of the association.

1. The name to be changed to the Missouri-Mississippi Valley Veterinary Association.

2. The need for approval by the A. V. M. A. of colleges whose graduates are recognized as eligible to membership in the association, to be eliminated.

The first proposed amendment to the constitution indicates, if adopted, that the Missouri Valley Veterinary Association will endeavor to extend widely the territory from which it draws its members; the second means it will establish its own standard for approved veterinary colleges.

If this great association extended and enlarged, confines its efforts to serving the best interests of the practitioners and others in the vast territory it purposes to include, it undoubtedly has a prosperous future before it. If on the other hand, it attempts to perform the functions of a national body, there are those who believe a mistake will be made.

BULLETINS EVERY VETERINARIAN SHOULD HAVE

Temperature Experiments in Incubation, Bulletin No. 195, Purdue University, Lafayette, Ind.

Vesicular Stomatitis, Bulletin No. 4, State Veterinarian, Cheyenne, Wyo.

Proceedings of the Fifteenth Annual Convention of the North Dakota Veterinary Association, Vol. 3, Agricultural College, Fargo, N. D.

—

The Use of Energy Values in the Computation of Rations for Farm Animals by Henry Prentiss Armsby, Bulletin No. 459, U. S. Department of Agriculture, Washington, D. C.

—

The Cultivation of Belladonna in California, by Albert Schneider, Bulletin No. 275, College of Agriculture, Berkeley, Cal.

—

Osteoma of the Fowl, by B. F. Kaupp, Pathologist, North Carolina Experiment Station, West Raleigh, N. C.

—

The Bedbug, by C. L. Marlatt, Bulletin 754, U. S. Department of Agriculture, Washington, D. C.

—

Agricultural and Commercial Co-operation, Address by Hon. D. F. Houston, Secretary of Agriculture, before Association of Commercial Organization Secretaries, Office of Information, U. S. Department of Agriculture, Washington, D. C.

Department of Surgery

By L. A. MERILLAT, Chicago,
Professor of Surgery in the McKillip Veterinary College

Elongations of the Molars

THERE is probably no dental disorder of the horse more common than elongations of the cheek teeth, and it is safe to say that no other affliction of our faithful friend causes half as much agony. Here is a disorder that tortures, not for days as a tooth-ache does, but for months and ofttimes for years, for once a tooth is lost or decayed its opponent immediately proceeds to invade into the space afforded, growing into decayed places, pressing apart loosened plates and boring into the softer tissues, creating at first only an impediment to mastication, but eventually a torturing agony at every attempt to partake of food. Sometimes after years of such discomfort these disorders actually perforate the bones into the nasal fossae or into the facial sinuses, which they may even impact with food in large quantities.

The elongation seems to have a role to play in finally terminating the agony of a decayed molar, for they do actually extract them. By driving up between the plates of a decayed molar these become more and more separated, more and more filled up with fibrous forage until first one plate is cast off, then after growing still farther into the cavity (and by the lateral motion of the jaws), finally dislodges the whole tooth. Thus self extraction of a molar tooth of a horse is sometimes effected. For a while such an event is superseded by some months of relief, but later the extention of the growth carries its pointed end into the depth of the alveolar cavity to gnaw away at the bones.

During this long course of the process of elongation the victim is mysteriously indisposed from pain, torture, indigestion, anorexia and probably also from the absorption of toxic products elaborated at the inflamed focus, and as the whole process is always a very slow one, the unfortunate subject often suffers throughout its whole miserable life. If animals actually suffer as much as the appearance of their infirmities indicate here is a disorder that would "make a bearded man cry" when its full significance is taken into account. Most all painful diseases of a chronic character relieve the patient by death, but here is one that permits its victim to live to torture it through its natural life.

The cause of elongations is found in the remarkable constitution of the molars. Constructed to grind tons of raw, harsh food during a whole lifetime the molars of herbivora are, at least in part, inanimate objects and as such are subject to the laws of attrition. Loss in substance, inevitable in such structures, is not restored by regenerative processes like other tissues. The molars are developed to their full physiological limits during adolescence and then must last without regenerative influences through maturity and decline. Once they begin to functionate they do not grow—they wear—and it is this wear that causes a non-wearing part to protrude. A row of molars under normal conditions should wear down evenly from a length of four inches in youth to a mere shell in old age, but if contact is absent at any part an elongation develops from the gradual wearing away of the adjacent level.

This absence or loss of contact may be acquired or congenital. It is acquired when due to a tooth extracted or a decayed tooth and congenital when caused by overlapping of the arcades. Disparity in the hardness of teeth may occasionally produce elongations but this cause operates chiefly on the teeth of old animals by undulating

the arcade with numerous short and blunt protrusions. These are unlike the elongation occurring in the prime of life in that they are never long enough to do much harm and occur at a time when the function of mastication is on the decline and the patient is fast becoming worthless.

The most serious elongations are those having their origin in decayed molars occurring early in life. The first (fourth) maxillary molar that decays at the age of three or four years will yield an elongation of the corresponding mandibular molar as soon as it fissures or is excavated in its center, and unless the decay announces itself by maxillary sinusitis, two, three or four years may elapse before its attracts attention. At this time the protrusion has extended into the decayed tooth which, now divided into two separated parts, form a receptacle that is crammed full of feed. As time elapses the protrusion extends farther and farther into the decaying cavity, until as above stated, a hole is bored into the bones.

As to rapidity of growth it should be mentioned that this varies somewhat with different individuals. Hardness of teeth makes them elongate slowly, while softness has the contrary influence. It is incontrovertible that there is a decided difference in the texture of equine molars; some are very hard and some very soft. The variation arises both from a difference in chemical and physical composition. Teeth whose enamel and dentine are dense and these component parts are well cemented together, as they should be under normal condition, may be said to have **hard** teeth. In this case the integrity depends upon the physical and the chemical condition. Teeth on the contrary lacking density and in which the plates are loosely cemented may be said to be **soft.** There are, however, between these two extremes molars hard enough as to the composition of the dentine and enamel, but which are poorly cemented. Such teeth disintegrate rapidly and being more susceptible to decay than others not only yield the greatest number of protrusions, but also protrusions which elongate fast from the rapidity of wear around them and the disintegration of the cavity into which they are growing.

In the case of ordinary molars the development of an elongation is about one to one and a half centimeters a year during the years of maturity. Later in life the development is slower. When a molar has been lost entirely by extraction the development is of course faster than where there is still a decaying molar to wear upon the end of the protrusion. It is always a safe prediction that the loss of a molar will yield a protrusion one inch long in three years and an inch and a half long in five years.

The shape of an elongation will depend upon the size of the cavity into which it protrudes. They are tuberous when the cavity is large and pointed when the space is narrow. The difference here is due to the fact that when a tooth of a young animal is lost the space narrows down often to less than half of its original dimensions. In fact, in rare cases the space closes up entirely; that is to say, the teeth after extraction of one of them may again crowd into juxtaposition. During this closure the elongation becomes correspondingly more pointed and sometimes when the teeth come well together they become sharp, running transversely across the arcade like a chisel. An elongation may be constituted of a part of a molar, a whole molar and a part of another or a part of two molars. This difference is due to the fact that the maxillary and mandibular molar are not directly opposite one another.

The symptoms of this disorder are sometimes very obscure and at others pronounced. Rejecting partially masticated food from the mouth, impaction of wads in the cheek, ptyalism, bolting the feed, turning the head to one side while eating, fetid emanations about the mouth and nose are so many symptoms that would lead to an examination of the mouth in search of trouble. It is in such examinations that elongations are found. Paradoxical as it may seem, however, the large percent of them are found accidentally when exploring the mouth preparatory to filling the teeth, generally in a horse never suspected of having such a grave trouble.

At other times elongations, complicated with a decayed tooth are found in examinations of animals affected with maxillary sinusitis (nasal catarrh). The patient is found affected, not only with an elongation of a mandibular molar but also with a bad decay of the opposing maxillary molar, plus the purulent complication within the sinuses.

The worst cases are those entirely neglected for years. Here the protruding prong is often found burrowing into the sinuses and impacting them with feed. Such cases exhibit the symptoms of a unilateral nasal stenosis and often have a bulging of the facial bones, and a stinking nasal catarrh. The perforation may extend into the palate and thus produce a direct communication from the mouth to the floor of the nasal fossa.

(*To be continued next month.*)

WORLDS WORK in Veterinary Science

A digest of all the Current Literature of Comparative Medicine

Dr. Adolph Eichhorn
Washington, D. C.

Vesicular Stomatitis in Cattle*

SOON after the investigation of the outbreak among horses at Calumet Yards, the Bureau received information from Kansas and from other parts of the West that a disease existed among the live stock, particularly among cattle and horses, which closely resembled foot-and-mouth disease. The reports from Kansas City were especially alarming, since the announcement was made that the disease was foot-and-mouth disease. The material sent by the inspector in charge at Kansas City was obtained from animals slaughtered at one of the establishments there. Upon the arrival of the material Dr. Mohler immediately prepared to send it out to the Experiment Station for inoculation purposes. At the same time I was directed to proceed to Kansas City in order to investigate the disease and to report the findings.

Upon my arrival there and examining some of the animals affected with the disease, I must confess that the manifestations in the mouth resembled so closely those of foot-and-mouth disease that a differentiation was almost impossible. In some of the early cases we found typical vesicular formations with an accumulation of lymph; the upper layer of the mucous membrane being separated from the basic membrane; the vesicles ruptured readily, leaving a surface such as we ordinarily see in foot-and-mouth disease. The lesions were not confined to any part of the mouth. The tongue was very frequently affected, perhaps in about fifty per cent of the cases. The pad was likewise quite frequently affected, more frequently than the tongue. The other parts of the buccal mucous membrane also showed lesions with variations in frequency. The healing lesions failed to give a distinction from those occurring in foot-and-mouth disease. The regenerative process progressed very rapidly, and only in the last day that I was there did I see a variation from the healing process observed in foot-and-mouth disease, namely,—the eroded parts were covered by a thick gelatinous pseudo-membrane, although this condition occurred only in a few instances. Of course, in these cases the healing process was somewhat retarded.

Inoculation tests.—Three calves were inoculated by scarification and five others by intravenous methods. The two groups were kept in different pens. Those which received scarification developed mouth lesions on the dental pad in forty-eight hours, although not in a very typical form. On the other hand, the animals which were given intravenous injections, some with the pure lymph collected from the vesicles, failed to develop any signs of the disease.

Five hogs were given interdigital inoculations with negative results. At the same time, horses were inoculated by rubbing the infected material upon the tongue, but as they failed to show any signs of the disease, on the third day I reinoculated them by scarification of the tongue with material collected from the recently infected animals. One of the horses on the third day developed a vesicle on the dorsum of the tongue, and as in the successful transmission to horses in Washington, on the following day an extension of the disease was observed affecting almost the entire surface of the tongue.

The transmission of the disease to horses from cattle and the failure to transmit it to pigs, of course, would practically eliminate foot-and-mouth disease; but other things also substantiate a negative diagnosis as far as foot-and-mouth disease is concerned. Not a single case did we observe with foot-lesions, either in the originally infected animals or in the exposed cattle. Besides, it was also ob-

(Continued on page 170)

*A discussion by Dr. A. Eichhorn at a meeting of the U. S. Live Stock Sanitary Association in Chicago. In his preliminary remarks Dr. Eichhorn related the history of the outbreak of the disease in horses and the investigations conducted by the Bureau with regard to the appearance of this affection in cattle.

Department of Live Stock Poisoning

By L. H. PAMMEL, Ph. D., Ames, Iowa
Professor of Botany, Iowa State College

It is the intention of the writer to use these columns to discuss the subject of poisonous plants. I shall, therefore, be glad to have readers of the American Journal of Veterinary Medicine send specimens of alleged poisonous plants to me. The queries will be given prompt attention.—L. H. P.

Is Boneset Poisonous?

SOME time last summer I received a letter from Professor Wolf of the North Carolina agricultural experiment station in regard to milk-sickness and boneset. The particular boneset in question is *Eupatorium egeratoides* or *E. urticaefolium* as it is now known. The plant is widely distributed from New Brunswick to South Dakota and to Louisiana. It is a smooth or nearly smooth branching herb from two to three feet high, opposite leaves, flowers white, in heads. Professor Wolf writes me that they have been feeding the boneset to sheep and that he has succeeded in causing the death of at least a dozen individuals. Like many other poisonous plants, opinions differ. There is a widespread opinion in some sections of the United States, that this weed produces trembles or milk-sickness. It is certain that Eupatorium is not relished by stock. I have never seen it eaten to any extent in Iowa. It is however not improbable that when pastures are short animals will eat the plant.

First of all let me give the testimony of E. L. Mosely of Sandusky, Ohio. Elisha Haff, Sandusky county, Townsend township did not think trembles were due to any weed, until he found that western sheep which he had turned into his woods ate the white snakeroot and died of trembles. Sheep whose ancestors had long been in the region did not eat it, and did not have trembles. Since that he has been destroying the weed.

"Mr. William Ramsdell of Bloomingville informs me that about 1842 when there was so much discussion of the subject the boys of the neighborhood used to assemble evenings at the old lime-kiln southeast of Castalia and experiment on dogs. They would steep or boil the white snakeroot and putting the extract in milk give it to the dogs, in which it would induce the trembles; a large number were killed in this way. Some one experimented on sheep in the same way with the same result. He informs me also that a Mr. Redmond (who did not believe that the weed was the cause of trembles) chewed some of the weed and died after suffering for about four weeks."

"On November 26th my pupil, Oscar Kubach, using snakeroot I had recently gathered, broke up the stems and leaves of two plants and soaked them over night in about a pint of milk, of which he gave about a gill at about 9 A. M. to his tomcat. The cat took about one-half of it. About 9:30 it seemed to take effect and he tried to vomit but could not. He took long deep breaths. He was quiet and wanted to sleep. All of a sudden he would tremble greatly, then again very little. A watery fluid passed from his eyes and mouth. He had no appetite. His senses seemed to be duller, as he did not care for anything. He went to sleep about 10:30 but did not sleep sound. He seemed to be in an unconsious state for the rest of the day. The next morning about 10:30 he walked about three rods and there died about noon."

Mr. Mosely estimates that 5000 animals have succumbed from the disease in a small area in northern Ohio. There are many cases commonly in this same region from milk-sickness.

Dr. Albert C. Crawford[1] of the United States department of agriculture published a paper in which he sums up the results of his investigation as follows:

"It certainly can not be said that it has been proven that milk-sickness is due to any constituent of E. urticaefolium. The transmission of the disease by eating small quantities of meat or milk of animals sick with the "trem-

[1]Bull. Bureau of Plant Industry.

bles" and the fact that cooked meat or boiled milk does not produce this disorder point primarily rather to a parasitic origin while the fact that E. urticaefolium is abundant in areas where the disease is not known and absent in some milk-sickness districts also indicates that the plant has no relation to the disease. If it does it would only be an accidental carrier of some pathogenic organism. According to reports, the same flora may be in areas in which "trembles" occur as in those free from it, and milk-sickness is also said to occur where no vegetation grows (inclosed pens). The disease also has disappeared from an area after simply clearing the woodland where it occurred and turning it into pasture. Again, sevcre Epizootics have occured in winter when the foliage has disappeared, which would tend to exclude the higher non-evergreen plants as the cause of this disorder. In fact, all the evidence in hand is against the causation of this disease by such plants, and certain analogies with cases of botulismus suggest a somewhat similar cause. If there is any truth in the statement that cattle exposed in pasture to night air especially contract the disease, the fact might suggest the more or less direct connection of some night organism as a carrier of the parasites, and certain parasites are supposed to be associated with certain localities. Very little is known chemically of Eupatorium urticaefolium."

In a recent bulletin of the Ohio Agricultural Experiment[2] Station A. D. Selby states that several cases of poisoning from white snakeroot have been reported from northern Ohio. In 1912 a cow died from eating white snakeroot in a woodlot. Again in 1915 he reports that two cows died from eating this dangerous plant. Another supposed case of death was from drinking the milk of a diseased animal. Professor Selby states that this is a plant of considerable importance. He refers to the work[3] of E. E. Mosely who found considerable aluminium phosphate in the leaves of the white snakeroot.

The anidote of poisoning from aluminium phosphate is discussed in a later number 4 of the same journal. He recommends the use of baking soda.

We hope to give more of the details of the work of Wolf when the same is published. This work of Wolf, Crawford and Mosely only illustrates the importance of knowing all the conditions. It is unsafe to draw conclusions from a few experiments.

ANTHRACNOSE OF BEANS. The following item in the Chicago Tribune about diseased beans is of interest.

"And now come the government experts with the discovery that even the lowly navy bean is subject to a disease, exclusive but deadly. The announcement was made in Judge Landis' court by government chemists who had been summoned to testify concerning the condemnation of 14,400 cans of pork and beans."

The beans were attacked by a parasitic fungus *Gloeosporium Lindemuthianum.* The suggestion was made that they were unfit for food because of the fungus. There is probably little ground for the belief that they are poisonous. However, they may not be wholesome.

The chestnut blight fungus has been associated with sickness I think, in some cases rodents and man are said to have been poisoned from eating chestnuts attacked by this fungus. But there is little evidence to support this contention. The decision of Judge Landis is suggestive, that only such food as is uncontaminated by fungi is good.

Bracken Fern Poisonous

I have been very much interested in reading the interesting account of bracken (fern) poisoning, by Dr. Kenneth Chester. The bracken is an extremely common plant along the entire Pacific coast, especially in Oregon and Washington and from British Columbia to Alaska. The experiments seem to show that the bracken is poisonous. This fern, like many others related to it, has been regarded as poisonous. However, there are few definite facts on the nature of the poisoning. Many, if not all, of the ferns contain filicicacid and a fixed poisonous oil. In this case as in others, we need some careful chemical investigations to prove the poisonous nature of the plant. We hope that this investigation will be forthcoming.

POISONOUS PLANTS*

Dr. John W. Harshberger has a well written and an authoritative article on poisonous plants. He discusses the subject under two heads: (1)—Those that cause injury by mechanical means, like stipa. (2)—Those that are poisonous. An interesting point mentioned by him is that Melter records that his horse ate 500 pounds of dried hay of *Passiflora incarnata* in August, while in March twenty-five pounds of the hay of this plant killed another horse. The leaves of the common black cherry (*Prunus serotina*) are more poisonous when dry than when fresh. The seeds of jimson weed are more poisonous than the remainder of the plant. The relative amounts of poisonous substances vary in different individuals of the same species.

[2]Monthly Bulletin Ohio Agrl. Exp. Sta., Jan., 1917.
[3]Medical Record, 1909:1-20.
[4]Medical Record, April 9-1910.

*Standard Cyclop. of Horticulture 5, 2728-2729.

Queries and Answers

The editor will reply to queries appearing here, as he is able and as opportunity permits, but he does not want, nor cannot undertake to monopolize this portion of the department. Any reader who can furnish further and better information in reply to any query is urgently requested to do so. Where the treatments advised in these replies is adopted it is hoped that those employing them will report their results whether good or bad. In all cases give the number of the query when writing anything concerning it.

QUERY No. 277.—A cow, eight years old, had a calf two months ago; lost control of left ear; left eye swollen; no other swelling. She would not chew food on the right side. After chewing food, she was not able to swallow it. There was a slight discharge of saliva; pain on drinking water; no elevation of the temperature; heart normal; animal losing flesh; teeth in good shape; no bad breath. The cow would not flinch at any place she was touched about her head. I thought the glands were affected and treated her for this. Can anyone give diagnosis and treatment?

REPLY BY DR. F. F. BROWN: An answer to the above inquiry must necessarily be based on the anamnesis furnished, which is rather ambiguous in such as pertains to the seat of trouble. Assuming that the symptoms noted of the ear and neighboring parts, attended or shortly followed the act of parturition, we would state that the case is one of local paralysis, induced by either local injury or hemorrhage within the cranial vault at a point involving the nerves supplying the parts affected. We offer no suggestion why the animal was unable to masticate on the right side and believe such interpreted symptom needs further study and confirmation. Paralysis of the duration mentioned when induced by pressure is apt to persist. For financial reasons, such an animal had best be marketed before further emaciation makes the loss complete.

QUERY No. 278.—I have a four-year-old gelding in my care that had strangles a year-and-a-half ago and since that time its nasal chambers have been practically occluded. The obstruction seems to be of bone. When the horse is exerted to any great extent it will almost fall for want of air. Would you advise removal of growths or insert a permanent trachea tube? W. M. ROTH, D. V. M.

REPLY: I should first determine, if possible, whether the stenosis affected both nasal chambers alike. This may be done by probing with a catheter and by comparing the inconvenience occasioned by closing one nostril and then the other. If there is material difference between the two sides the one most affected should be treated and the other is not invaded surgically.

The subject must be anesthetized with chloroform or given enough chloral hydrate to completely narcotize. An opening into the nasal chamber is made through the false nostril, by means of an incision parallel with the median plan, and this is carried from a point just proximal to the inner cartilaginous ala of the nostril to nasal peak or apex of the nasal bone. By means of this opening one may, by direct illumination, examine the obstructing body. If it is so situated that a complete examination of the obstructing mass is not possible, another opening may be made through the nasal bone and overlying integument at a point opposite the infraorbital foramen. This opening should be about an inch in diameter in the average size head and the bone is best cut with a sharp mastoid chisel. Upon further examination, if necessary, this opening is carried downward sufficiently to enable the operator to manipulate instruments through this aperture.

Depending on the size and location of the obstructing body and particularly upon its character, the operator is guided as to subsequent procedure. Benign tumors that are constricted at the point of attachment constitute the least troublesome conditions with which to deal. They are easily removed by torsion or by incising with the scissors or with an ecraseur. On the other hand, bony growths that have a large base of attachment and these affecting the septal cartilage sometimes constitute very formidable anomalies. Such tumors, if removed, whether it be done with chisel or saw, perforce leave exposed an area of the nasal septum, which is itself diseased and which does not, as a rule, heal readily. Not infrequently, a progressive necrosis of the ossified areas of the septal cartilage, succeeds these operations and in some instances death of the subject results. For this reason, it is best to avoid extensive

surgical invasion of the septal cartilage in such cases. One side only is treated if formidable obstructions are not bilateral. Affections of this nature involving the turbinates are not so troublesome and are, as a rule, removed without great difficulty.

Hemorrhage is controlled by means of a gauze pack which is retained with sutures that are inserted to the false nostril. This pack is removed in twenty-four hours and ordinarily no after-attention is given the wound. The trachea tube is left in place for about two weeks and then it may be removed. Where complete recovery is to follow operations on the septal cartilage, a gradual diminution of nasal discharge results in cessation of such discharges, in a month to six weeks.

My advise regarding the handling of such cases is, that unless you are equipped to cope with the various exigencies that may be encountered in the removal of such growths, when they are of large size, you would best insert a permanent trachea tube and at some later date, if you see fit, surgical treatment may be attempted.

QUERY No. 279.—In the reply to Query No. 263 in the December issue, you say trephine over the root of the tooth and the position varies with the age of the horse. Please give your method of locating the roots of molar teeth and also the best way of trephining without injuring the nerve and blood supply of the sound teeth. T. P. C.

REPLY: Knowing that the root of the first cheek tooth is inclined slightly forward, and that the roots of the others are inclined in a more or less backward direction, the operator has no particular difficulty in determining the position of the root of a tooth with respect to its being inclined forward or backward, when he has located its table surface. With age, as the tooth wears at its table surface and its root is projected from its alveolus, the contour of the face is changed and the site for a trephine opening is then lowered. In a general way, in subjects that are mature, it may be said that the lowermost portion of the concavity described by the contour of the face marks the upper part of the roots of the cheek teeth. A study of illustrations in works on dental surgery together with dissections of the head is the only way to get a definite idea of the relation between the roots of the cheek teeth and adjacent structures.

By exercising care in directing the punch so that force is directed immediately upon the root of the tooth and holding the punch so that its long axis is exactly in line with that of the tooth the operator will not injure adjacent teeth unless complications exist. Removal of the outer alveolar wall constitutes the best means for avoiding injury to adjacent teeth, where complications are present.

QUERY No. 280—I am called to treat a great many cases of retained placenta in cows, or "moon calves" as they call them here, where they have been neglected for a week or two or three, and the uterus is tightly contracted at the cervix. What would be the most logical procedure?—J. C. M.

REPLY BY DR. HENRY HELL—In the cases of retained placenta referred to, I generally meet the conditions as I find them. Where the cervix can be dilated enough to get the hand in, all that is needed then is to get hold of the membranes. They are so rotten that they come away without any trouble. I have never met with a case where the cervix was tightly closed and the membranes tightly adherent. I irrigate with warm potassium permanganate solution and use a uterine capsule of iodoform, one dram, perborate of soda, six drams, solid extract of belladonna, one dram. I do not meet these cases as often now as I did ten years ago.

QUERY No. 281.—What is the ration of oats and hay allowed army horses?—W. L. S.

REPLY: Henry's "Feeds and Feeding" is authority for the following:

"Oats, hay, and straw are the standard feeds used for army horses by the great nations, since they best fill the following rigid requirements: All provender for such purposes must not only be palatable and safe, but also widely known articles of trade, easily collectible in vast quantities, readily inspected, and generally uniform in quality; moreover, they must not be subject to excessive waste or deterioration during storage and transportation.

"In the United States army the daily allowance of grain is twelve pounds per head for horses weighing up to 1,125 pounds; and nine pounds for mules averaging about 1,025 pounds. Under unusual exposure, three pounds of additional grain daily may be issued. The standard allowance of hay for both horses and mules is fourteen pounds, with 100 pounds of straw for bedding per month.

"In Great Britain the ration is twelve pounds of hay and ten to twelve pounds of oats. Eight pounds of straw per day is fed horses when at the garrison. In the French army a smaller allowance of hay, 6.6 to 8.5 pounds, is given with an allowance of oats ranging from 10.4 pounds for light horses in time of peace to 14.7 pounds for the heavier horses in war time. The German army uses cut straw generally in the ration, the roughage ranging from 7.8 pounds straw and 5.6 pounds hay in the garrison to only 3.9 pounds straw and 3.3 pounds hay when in the field. The allowance of oats ranges from 9.5 pounds on a light ration in the garrison to 12.6 pounds on a heavy ration in the field.

"With the army horse it is often necessary to use substitutes for the regulation concentrates and roughages. General Carter states that oats, corn, bran, and sometimes barley, especially in the southwestern states, form the concentrate allowance for the horses in the United States army. Palay, or unhulled rice, was the main reliance of the cavalry horses in the Philippine Islands during the early days of the insurrection. Pott mentions that a stock bread, made of coarsely ground oats, peas, barley, and linseed, with a little salt added, was employed by the Russian cavalry during war time. The kind of hay fed will vary according to the district. Carter says that besides the common cultivated grasses, there have been accepted at various times in the United States army, hay from gramma grass, bunch grass, and other wild western grasses, various reed grasses, wild oats, and "pulled" corn fodder."

QUERY No. 282—A lot of swine (159 Jersey Reds), thrifty and well taken care of, the sows looking splendid, also the young pigs, until three or four months of age, when they commence to root at the anus of each other until the anus becomes inflamed, swollen and finally everted. They continue the nosing or rooting until the everted portion sloughs off; then the inner section of the rectum grows or closes almost entirely. The consequences are occlusion or nearly so, constipation, indigestion, anorexia, pyrexia, bloating, peritonitis, enteritis and finally death in nearly every case. I have lost several and the process still continues and is becoming alarming. I have advised ringing and separation, but separation in winter is not a practical thing, and ringing does not seem to overcome the trouble as they resort to sucking and biting and the victim does not resent it and stands quite still. This is a new one on me, as I have never heard of anything just like it and I would be much pleased if you could give me any advice on this matter that might lead to successful treatment.

REPLY BY DR. W. F. BROWNLEE—Hemorrhoids or piles in shoats are caused by continued constipation, due probably to some dietetic error, which at this season is apt to be a deficiency of mineral matter in the feed. The rectum becomes congested and inflamed from being crowded by hard feces, and the animal strains in the effort to defecate. Hemorrhage ensues; the anal opening becomes lax; and attracted by the blood the herd will commence to nose and bite the parts, becoming more insistent as the protrusion occurs. The treatment is simple and effective. Place the afflicted animals in individual pens. Give the entire herd liberal doses of epsom salt until the bowels are emptied. To eighty pounds pulverized coal slack, add ten pounds air-slacked lime, ten pounds common salt; mix and place in self-feeder where the herd can have access to it. A few new cases may develop the first week, but none later if care is taken to keep the bowels in proper condition.

QUERY No. 283.—What is the etiology of the disease vesicular stomatitis? Does an animal which has recovered from one attack of this disease acquire immunity to further attacks? In the case of dairy cattle affected with this disease, is the milk affected in so far as its use for human consumption is concerned? How wide a distribution of this disease has been reported throughout the United States? What per cent of loss is sustained on account of this disease?

REPLY BY DR. J. R. MOHLER: The literature upon the subject of vesicular stomatitis fails to incriminate any specific organism as the cause of this contagion. A bacteriological report of the work done by Dr. Mathers of the University of Chicago on the etiology of this disease was read at the recent meeting of the United States Live Stock Sanitary Association, but the evidence presented in favor of the bacillus described, was far from conclusive. Unlike the virus of foot-and-mouth disease, the cause of vesicular stomatitis is large enough to be withheld by the pores of the Berksfeld (N) filter, through which the virus of both hog cholera and foot-and-mouth disease will readily pass. Vesicular stomatitis has been proved to be contagious, although the degree of contagiousness varies between wide limits. In fact, certain writers have claimed that it is not contagious because they failed to reproduce the disease after experimenting on one or two healthy animals. Our experience with this disease shows that frequently one or even more of the injected animals in an experiment will fail to develop the infection, as in several instances we have produced the disease in only two out of three, or two out of four, or again three out of nine of the experimental animals, so that it is necessary to use more than one animal if accurate information is to be obtained. This point is strongly brought out by the opposite conclusions reached by two French investigators, Jacoulet and Vigel, who recently found the disease in American horses shipped to France. The former believes the disease is benign, non-transmissible, and of alimentary origin, while the latter readily transmitted the disease to other horses and convinced himself of its contagiousness.

Very little work has been done on the question of immunity in this disease. We have had several horses and cattle that were typically affected last fall, fail to contract the disease when inoculated with the virus three months later, although the control animals became infected promptly. In these cases immunity has

evidently persisted for at least three months.

Whether the milk of affected cattle is or is not infectious for man has not been recorded, but such milk has been fed to hogs with impunity. No experiments have been made concerning the effect of this milk on calves.

The distribution of vesicular stomatitis among horses has followed the channels of trade from the western markets eastward as far as the Atlantic Coast. The source of the infection seems to have been traced to eastern Colorado, western Nebraska, and southeastern Wyoming where the disease, originally in horses, spread to cattle also, but not to hogs or sheep. In this district the disease existed on the farms and ranches and was carried to the Kansas City Stock Yards in a shipment of cattle. This is the only occurrence of the disease among cattle in a public stock yards, but it has appeared quite frequently among horses shipped to and from such stock yards as above indicated.

No losses have been reported from uncomplicated cases of this disease in either horses or cattle. A certain proportion of the horses having vesicular stomatitis also became infected with either influenza or contagious pneumonia or perhaps both and, of course, deaths have occurred among such animals.

ANTHRAX

(*Continued from page* 156)

are that only one treatment is required, and that the animals are said to be protected after ten or twelve days. This is sometimes referred to as the sero-simultaneous, or sero-vaccine, method, and Sobernheim claims to have had signal success with it, especially in the Argentine and in Uruquay, having used it on nearly 300,000 animals with almost perfect success, and was not, in itself, productive of any loss.

Frasey, of the Pasteur Institute in France, has experimented with an anti-anthrax serum obtained from the horse, and recommends its use in the case of an outbreak of the disease where the animals had not previously been vaccinated; or, where vaccination had been regularly resorted to for several years, then neglected or abandoned for a time, with a subsequent outbreak occurring. In such a case, says Frasey, anti-anthrax-serum may be of great service. And while its application may be more expensive than simple vaccination in a region free from the disease, it can check an outbreak to a very considerable extent. A lecture by Frasey on this subject, before the Society of Practical Veterinary Medicine, in France, has been reproduced in our professional journals during the past year, and may be referred to for more detailed information.

Considerable attention has been given to the preparation of a spore vaccine, which seems to have been successfully employed in different countries, such as Russia, Hungary, Japan, and others; and Dr. Adolph Eichhorn, chief of the Pathalogical Division, of the Bureau of Animal Industry, seems to have obtained encouraging results, both with the serum-alone treatment, when infection has already occurred, and with the simultaneous use of a spore-vaccine and the serum, as an immunizing agent. Dr. Eichhorn also claims for the serum a high curative value, the dose being regulated according to the severity of the infection.

Further, since the serum, alone, confers only a passive immunity, it is advised to revaccinate in from three to five weeks by the simultaneous method. Bulletin No. 340, U. S. Department of Agriculture, gives a report of Dr. Eichhorn's work along this line.*

For the present, however, I scarcely think it would be wise to discard, entirely, the Pasteurian method of protection for others, until they have been thoroughly tried out in our particular section of the country, especially if the former is used under the most favorable conditions, both as to the potency of the vaccine, and its intelligent and careful administration.

However, in cases where the Pasteur vaccine might not be indicated, such as lateness in the season, or during outbreaks, and on account of the length of time required to obtain immunity, it is possible, I think, if not quite probable, that satisfactory results may be anticipated from the use of these newer products when judiciously employed and in proper hands.

I have already alluded to the fact that the use of anthrax vaccines has not always been uniformly successful with us, and I have mentioned some of the reasons which I think account for part, at least, of this variation. There is another point in this connection, however, to which I would like, briefly, to refer. All bacteriologists are aware that the same organisms may differ considerably in their potency; or, in other words, there are different strains of the same germ; and products prepared from a strain of anthrax organisms found in one part of the country may not be sufficiently potent, or vice versa, to successfully combat the disease in another. Or, to bring it closer home; products prepared from a strain of anthrax organisms secured in some more northern territory, may not be so effective in combating the disease in our section, as if the product had been

*Dr. Hershberger, in the report already referred to, seems to have secured excellent results from the use of both the anti-anthrax serum alone, and the simultaneous method with spore vaccine and serum. The serum was used both in preparing the animals for the double dose, and also as a curative agent, in larger doses. Both products were obtained from Russian laboratories.

prepared from the strain of the germ that we have. And, while I may be very much mistaken in this matter, I am rather confirmed in the conviction, that we will not secure the best results until we can have these products prepared from our "parent" organisms, or those with which we have to deal in the Lower Mississippi Valley.

In summing up, let me say, that, in my humble opinion, there are three principal factors to be considered in connection with our successful fight against anthrax. These are, *protection, sanitation, and co-operation.*

It is unnecessary, I think, to further enlarge upon the rest of these, as I have already alluded to the different protective agents in use, or suggested.

To sanitation and co-operation, however, I will briefly refer conjointly.

In the first place, let me say, that sanitation on the part of individual stockowners, is of the utmost importance for their own protection; but I would refer, more especially, to sanitation as may be required by state law.

When livestock sanitary regulations are adopted and promulgated by the state, it is presumed that they have been considered necessary for the general wellbeing of stockowners, individually and as a whole, and not intended to work a hardship on anyone; but, on the contrary, are for the benefit of the individual, the community, and the state. Besides, legislation of this character is generally framed by those having a more or less intimate knowledge of the minute forms of life which cause the different infectious diseases of animals, and how best to control and eradicate them; and not by those unfamiliar with them and their methods of attack and dissemination. Hence the importance of stockowners, not only accepting and abiding by state regulations of this nature, but aiding and co-operating, to the fullest extent, in their enforcement.

An individual, who, through ignorance, indifference, or otherwise, tries to evade such regulations, is not only an enemy to himself, but a dangerous menace to the livestock interests of his community, and of his state.

Human nature seems to rebel against any measure which requires a person to do something which may cause him a little inconvenience, or against his inclination, and especially if he does not fully realize its importance. But in the case of a dangerous and fatal disease like anthrax, for example, with which stockowners in general cannot be expected to be thoroughly conversant, unless some line of sanitary procedure should be required by law to endeavor to control it, there would be no end to the losses that might accrue therefrom.

On the other hand, if each stockowner in the state had made an accurate study of this disease, and the life history of the germ which causes it, and would apply this knowledge intelligently, there would then be little or no use for a law to require him to adopt such measures for his own, and the general, good. However, everyone must know that such a condition does not at present exist, nor is it reasonable to presume that it ever will. Hence, for the good of everybody concerned, it has become necessary for states to enact just such legislation.

A law of this nature, in order to be effective, must necessarily receive the hearty co-operation of all for whose special benefit it was enacted, otherwise, the greatest good cannot be expected from its operation. Unfortunately, up to the present, it is mainly due to the want of this co-operation that this fatal animal disease has been permitted to remain with us, and spread, when favorable conditions have existed.

Anthrax has been responsible for tremendous losses to our stockowners in the past, and there is perhaps no other of this class of diseases that calls for greater strictness in the enforcement of sanitary measures to control it and prevent its spread. Fortunately, there are artificial means, in the form of vaccines and serums, which have already been alluded to, to help protect our animals against it; but these are only aids, and not all that is necessary to obtain the most satisfactory results. The infected carcass left carelessly exposed, the neglect of thorough disinfection of premises, etc., are sufficient in themselves to cause fresh outbreaks on the same place as well as on others.

It is the strict sanitary control, therefore, that is so often overlooked, and which requires enforcement, where such is likely to be, or is, neglected.

The fact should be thoroughly understood, by laymen especially, that what is usually spoken of as infection, is, in reality, living germs, each being the cause of its own specific disease; and while vaccines and serums are extremely valuable as protective agents, the main object should be to destroy the infection by strict sanitary means, not merely to clean up the infected premises, but to prevent the disease being carried to other places which may yet be free from infection. The value of co-operation in this important work, therefore, must be very evident to every intelligent person.

True, there are states, like your own and mine, that have livestock sanitary boards or commissions which are legally at the head of this work; but every thoughtful individual must know how helpless such boards must be, with meager funds at command to handle such an extensive undertaking in the ab-

sence of the necessary co-operation on the part of all who should be interested, whether it be the individual, the community, or the county. On the other hand, with such sanitary effort, thoroughly organized, and heartily co-operated in, throughout the state, such a disease as anthrax, and some others, might be considerably shorn of its terrors, and the losses occasioned by it, very materially lessened.

In short, then, if we can only manage to obtain protective biologic products, the uniformly-potent effects of which we can be assured by actual experience, in our southern section of the country, and these placed in the hands of only competent individuals; when we can have our state live stock sanitary laws rigidly enforced, especially with regard to the proper disposal of anthrax carcasses—and, parenthetically, I might suggest, that a beneficial regulation would be to require, during the warm season of the year at least, all carcasses, irrespective of the cause of death, to be carefully and effectually destroyed by incineration; when we can depend upon, and obtain, the hearty co-operation of everyone in this important sanitary work; and when our uncultivated and undrained and presumably infected areas can be brought under cultivation and more effectually drained, where such are possible and practicable; then we may anticipate results in the control of anthrax infection that should be far-reaching.

On the other hand, however, until we are able to secure such combination of effort as I have alluded to, and every factor working smoothly and harmoniously, and with the one chief end in view, viz., the control and, if possible, the eradication of the infection of this fatal and expensive plague, I am afraid, while we may continue to achieve some measure of success, it is going to remain fragmentary in comparison with what we could wish it to be, or what it really would be, under the combination of aggressive forces which I have, but feebly, endeavored to set before you.

VESICULAR STOMATITIS

(*Continued from page* 162)

served that in some cases, even when the healing process was well established, new vesicles developed in the same animals. In some cases we found that the infection had persisted for at least five days and new lesions kept developing. Further, in one of the pens probably sixty per cent of the animals failed to show any lesions. In the other pens, only about fifty per cent of the animals developed lesions; which, of course, if the infection had been true, foot-and-mouth disease would have, without doubt, spread to all animals.

The condition for the development of foot lesions were very favorable there, and in spite of this, in not a single instance did we observe any lesions; but where the mouth lesions were found, they were so characteristic, as I said before, that it would be difficult to make a differential diagnosis.

Temperatures were taken of about one-hundred animals, and in not a single instance did we observe a temperature over 103° F. The temperature of animals affected in the initial stages of the disease showed likewise no rise, which, of course, is an important differential point from foot-and-mouth disease.

As far as the etiology of the disease is concerned, nothing definite has yet been developed. The healing process in the cattle which was observed at the Kansas City yard appeared very similar to the regeneration observed in foot-and-mouth disease with the exception of the few cases in which a deposit of pseudo-membranous character appeared on the lesions. They heal very rapidly; in fact, some of the veterinarians who have observed these cases thought it was something unusual.

The occurrence of the disease in cattle, of course, is very important because we may hear from time to time from different parts of the country of its appearance, giving rise to its confusion with foot-and-mouth disease.

"AIR TREATMENT" FOR MAMMITIS

How would you treat a cow down with milk fever accompanied by a severe case of mammitis? I was called on January 26th to treat a cow in this condition, with the right half of the bag badly inflamed. The right hind teat has not given milk for several years; therefore, I could inject no air in that quarter. The other quarters were inflated, but I was unable to get much air in the right front quarter. This morning, January 27th, the cow has recovered from the milk fever. The inflammation in the right front quarter is entirely well. The right hind quarter where no air was injected is still inflamed. Why not experiment and try injection of air in mammitis? C. L. W.

The JOURNAL is highly satisfactory to me. It is both practical and scientific. From each copy I derive much that is profitable to me and also much pleasure and encouragement.

I received my copy of "Lameness of the Horse," by Lacroix. I consider it the most practical book in by library. Studying this book has increased my ability in handling lameness generally over fifty per cent.

Tetuopolis, Ill. B. L. LAKE, D. V. M.

Pointed Opinions on Live Topics by Readers of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the thanks of the editor, the approval of the veterinary profession and the lasting gratitude of those who are aided by your suggestions.

A Practitioner-Subscriber's Ruminations

SOMETHING like a decade ago I sat in a classroom and listened to one whom we all regarded with awe on account of his superior wisdom and learning. Amongst other statements was something like this: "The great feature about veterinary work is that there are so many unusual occurrences. Every young practitioner at the beginning of his work thinks that each and every case to which he is called is (to him) an unusual one and immediately writes it up for publication. Hence, we find that much of the space in our veterinary periodicals is taken up with descriptions of extraordinary cases—or written in such a manner that one gains that impression. Had the experience of the authors been more extensive, in all probability many of these articles would never have been written."

Possibly I remembered that statement better than I did the text of the lesson under discussion. Be that as it may, I decided then and there that I would never be guilty of such indiscretion; but after all these years I question if the quotation should have been taken too literally. Also I have come to believe that unusual occurrences can befall a young practitioner equally as well as the older man. Therefore I would commend the youthful writer, and while he may be the recipient of adverse or unkindly criticism, he is the gainer in the end and can adjust his foresight accordingly.

Some time ago an article appeared in the Journal entitled, "Veterinarians Who Neither Read Nor Write." It was an interesting article and the author's idea was a good one, viz., if you don't like what is written, send in some of your own. There are many veterinarians with years of experience who could give the younger ones valuable advice if they but would. To get it they must be probed and pumped, then have it placed together to even get an outline of it. Loosen up and let us hear from you.

I have read every number of "Veterinary Medicine" since it appeared in print. True, I have applied the criticism of limited experience to many articles, to others I have allowed the question of improper diagnosis, but I enjoy it through and through. Even the ads come in for their share of both praise and criticism. To me it all has its use and place.

Some years ago Doctor Campbell wrote me, asking if there was any part of the JOURNAL that I did not like, The story of "Nan" was then running. A veterinarian (from a Chicago school) asked me what interest I thought such a story had in a veterinary journal. I told him that all that I could see in it was that it probably was just to remind many veterinarians of familiar scenes. I seldom read it—just scanned it and do not know yet what it was run for. To some the "Itinerant Horse Doctor" was no doubt very interesting. With the price of good paper soaring, I fail to see wherein it had a place, but Doctor Campbell assured me that it had a moral.

As the years have passed the JOURNAL has changed in many ways, and for the better. It has always been good. The personal column was an interesting addition. I like the editorials also, though I sometimes wonder how he can lure his muse into a cat and dog hospital—however, she is entirely feminine and a mere man has no right to reason why and how.

The Detroit write-up was a crackerjack. Almost as good as hearing it until I read who was there. I had my plans all made to go but getting cash in this country when there is no wheat crop is worse than trying to collect subscriptions. I did not know that I could not afford it until it was too late to "Ford" it. It's Kansas City for me next summer if I have to cut across states.

Isn't it interesting to see what progress has been made in treating some of the diseases that were baffling but a short time ago. Only a year or so ago there were several columns in the JOURNAL regarding the helplessness that beset the veterinarian in treating an acute attack of azoturia, while now there are specifics galore. Recoveries but little short of miraculous brought about by the simplest of combinations: turpentine and linseed oil, digitalin and sodium chlorid, lobelin sulphate and arecolin, azolysin, leukocytic extract and a lot of others. I use the last two in combination but it is slow. I'd like to use some short-cut routes to recovery but wonder if I'd miss the road. I know it that one way. I suppose each has his own particular one.

As regards the article on azoturia in the last number of the JOURNAL, I read it with much interest. Then I read parts of it again. Dr. Steffen's theory is almost identical with the one that I have been working on for the past two years but I had not gone as far as he. And, too, I was looking for a different diluent for the trouble. I note that European veterinarians have taken up the same line of thought and treatment that I had under observation.

With the advent of Archibold's leukocytic extract on the market I turned to it as an adjunct to azolysin and found results to be all that I could desire—not a single unfavorable sequel in any case. And, too, in mild cases I use the leukocytic extract alone as it is more easily administered, costs no more and, I think, acts more quickly. However, each acute case calls for the two in conjunction and I am never in doubt as to the results. Perhaps if mine were a city practice I might find some that would not yield, even to the two treatments given simultaneously. If I were practicing in a city I think I would use my first line of treatment at the earliest possible moment followed by the azolysin and leukocytic extract.

I had expected to send in some case reports on its use later on—or as soon as I had satisfied myself that I was on the right track, but with the opportunity to use a specific which was really easier, I yielded to the press of work and discontinued my former theory and treatment. Few veterinarians could use it anyhow as they are not trained for that work. They would have too many funerals from the treatment rather than from the disease.

I have advised a number of veterinarians to use my combination of azolysin and leukocytic extract but they did not appear interested so I dropped the matter. There may be some who do not have a specific and to whom it would be as great a boon as it has been to me. There are so many spontaneous recoveries from azoturia that many take the chance that such will occur. There have been times in the past when I almost tore my hair and wept at the realization of my helplessness in acute cases of this ailment, but now I just start the machinery going and turn my attention to the next case, confident that all is well.

The "Approval from Ireland" in the January number met with my hearty "Amen." The most good I ever obtained from any one's mistakes was when Dr. Merillat told of "Castrating eight ridglings, of which three died within a few days." I just breathed softly and said, "Glory be." I have lost one since I began practice—the second one. Now I take anything that comes along without fear. It is said that "Every dog has his day," and my time to lose them may come so suddenly one of these days I will wonder what happened.

Just a suggestion in taking photographs—kindly have the veterinarian and assistants keep out of the way. Real freaks do not show up clearly except alone.

I like the Veterinary Medicine Series of books very much. The one on Sheep Diseases is decidedly to the point. Had the name of the author been withheld I could have told who wrote it. I even expected to find his photo on the first page but, behold—we were not to see his countenance. Oh modest man!

Casselton, N. D. E. D. HARRIS.

CARCINOMA OF GLOTTIS IN COW

Upon receiving a hurry-up call January 9, 1917, I found a cow in extreme distress, a great quantity of frothy material oozing from the mouth and nostrils.

The history of the case disclosed the fact that she had been suffering for some time with difficult respiration and symptoms above mentioned, but the owner did not deem it necessary to call a doctor.

I proceeded to insert a tracheotomy tube which afforded instant relief.

I placed the animal on soft diet, of which she partook sparingly and saw her next day whereupon the owner told me she refused to eat any more. Upon further examination I found the omohyoid and sterno-cephalicus greatly swollen; thyroid gland enlarged and

offensive discharge through mouth and nostrils.

I pronounced the case incurable, diagnosing it as carcinoma of glottis.

The cow was destroyed and glottis removed. A typical cauliflower growth completely filling the glottis was found which was unmistakably cancerous. FRANK A. WALTER, D. V. M.

Lemont, Ill.

A SIMPLE CONFESSION IS GOOD, ETC.

When reading the January number of the AMERICAN JOURNAL OF VETERINARY MEDICINE, page 50, "An Approval from Ireland," it suddenly brought to my memory a scene of long years ago, and I surely enjoyed a good laugh at the memory. I was comparatively young in practice then, but not so young but that I had made my mistakes. When requested by the secretary of our state veterinary association to prepare something, I carefully prepared a paper entitled "Mistakes I Have Made." I told of my mistakes, some of which in the light of a few years later were foolish ones, and some yet would be unavoidable. I fully expected a discussion that would enlighten us, but on sitting down, not one member present offered a single word. The chairman waited a reasonable time, and no one spoke; so he said, "Evidently no one desires to discuss this paper." I arose and said: "Mr. chairman, had I known that I was the only damn-fool veterinarian in the state of Ohio, I would not have given myself away like this."

WILLIAM H. GRIBBLE.

Washington, C. H., Ohio.

TORSION OF THE UTERUS CORRECTED BY FORCIBLE ROTATION

During 1916 the JOURNAL has contained several articles on torsion of the uterus.

Different procedures have been outlined, but all admit the gravity of this condition and difficulty of rectifying it.

For many years I have followed the following simple procedure, with almost invariably good results.

I have never met a case so completely twisted that I could not get in my hand, and place a cord over the feet, and by a little careful manipulation bring them to the outside. Sometimes considerable traction is needed to get them far enough external to the vulva to place a round stick about eighteen inches long between the feet and fetlocks.

Lash securely with a small rope, then with a strong effort rotate in the contrary direction to the twist, and fetus and uterus, turning together, will speedily right themselves, and normal delivery follows.

Do not jump to the conclusion that these proceedings are impossible, just try it and see. I have used this procedure repeatedly both in mares and cows for a great number of years with only one failure.

Oshawa, Ont. ALEX. WANNAN.

A BETTER FOUNDATION

The veterinary schools of our country today do not require the same amount of preliminary education for entance that the schools of human medicine require. The first class medical schools require a diploma from an accredited high school, with two years of university education added to it. Why this difference? Is the course given in our veterinary schools more slack, less scientific than the course given in our medical schools?

I believe people of sound mind would prefer a doctor with a university education to treat them to a doctor with only a common school education. I feel that the university man possesses a keener insight into the more puzzling problems of medicine. I believe he has by hard study a more active brain, a superior ability to grasp the great advances that are being made in human medicine today.

Is it possible that some slip by through examination without the equivalent of high school training they are supposed to have for entrance to any veterinary school? It is not dealing fairly with the man with a high school diploma. I call it very unfair. Give them a few of the problems in algebra or geometry, a few questions in Latin, German or even common grammar and spelling that the boys and girls are receiving in examinations in the accredited high schools, and they will fall flat.

I am not casting any reflections on our present day practitioners who do not possess a high school education, for we have many such, and they may be good honorable citizens and practitioners, who are a valuable asset to their towns and communities. Still conditions are different now. For what was good enough for us along educational lines is not good enough for the new generation of our boys who are to carry on our duties.

We want a more honored profession, and it must advance not only in one way but in many. We will admit that to sit down and figure out a problem in algebra will not help in a difficult case of dystocia in a sow, or we can read the whole book of Caesar to a horse suffering with enteritis and if we get near him he will in all probability knock all the Latin we ever possessed entirely out; but that is not it. We need all the knowledge we can acquire to help uplift the profession.

We are all aware that if the veterinary course is studied right and scientifically, it is just as difficult as the course given in human medicine. We have more comparative anatomy, physiology and therapeutics to learn and

remember than does the student of human medicine. Then if it takes a man possessing a high school and two years of university education to make an M. D., it ought to take at least that much to make a scientific veterinarian. C. L. WHITTINGTON.

Lu Verne, Iowa.

FLUSHED 300 UTERUSES WITHOUT UNTOWARD RESULTS

In your January number I notice where Dr. Frederick recommends flushing of the uterus, contrary to "T.N.S." in his article "Experience Has Taught Me." During the year 1916 I removed 118 afterbirths and flushed every animal after the afterbirth was removed with a weak solution of potassium permanganate and encountered no bad results. The two years preceding 1916, I am sure I have removed not less than 100 afterbirths a year, and flushed the uterus in every instance with good results. I am surprised to hear that flushing would kill some of them, since the results with flushing have been more than satisfactory with me. I agree with Dr. Frederick that the kind of water used may be a factor in killing some.

Roselle, Ill. H. THEOBALD, M. D. V.

TETANUS RESPONDS TO SMALL DOSES OF ANTITOXIN.

August 30th a man came into my office and asked me to come with him and look at a mare which he thought was going blind, as her eyes had looked "funny" for ten days past.

On arrival at the place I found a grey mare, eight years' old, suffering from tetanus.

I at once administered 3,000 units of antitetanic serum (P. D. & Co.) which was all that I had on hand.

The next morning the owner reported the animal considerably improved.

I gave doses of 3,000 units of serum at intervals of two days until six doses had been given and each time I saw the animal she seemed greatly improved and by the time the last dose was given she was as well as ever.

This case convinced me of the value of antitetanic serum as a treatment for tetanus. Recovery commenced with the administration of the first dose.

The case received only 3,000 units every forty-eight hours or but 18,000 units in all. This dosage is a great deal smaller than the curative doses usually recommended; if success can be obtained with these doses it seems to me that serum will come into wider use in country practice, the main objection to its use heretofore having been the cost.

E. N. SCHOEN, D. V. S.

Ortonville, Minn.

STRYCHNIN INTRATRACHEALLY FOR DESTROYING HORSES

Speaking of destroying horses whenever necessary, I wish Dr. E. E. Hobson would try the following: Dissolve four grains of sulphate of strychnin per 1,000 pounds of horse in about two hundred times as much acidulated water. Select a spot six or eight inches below the larynx between the two rings of trachea, and inject the fluid into the trachea slowly. By slowly, I do not mean being all day at it, but simply a steady slow pressure on syringe, and if syringe be rotated, a little while emptying it will be better. They will ofttimes fall dead without a struggle. Bleeding causes too prolonged struggling for the sight seers. We believe the most humane way is using a speared maul; but is objected to from looks. By a speared maul we mean a common sledge hammer that has a half inch hole bored into one face and a piece of steel put in that hole and fastened, and projecting from face of hammer about two inches. When the horse is struck a heavy blow the sharp point penetrates the brain and the animal gets the concussion of the hammer plus the action of spear point. WM. H. GRIBBLE.

Washington, C. H., Ohio.

PRACTITIONER'S VIEWS ON SLINGS RESTRAINT AND AZOTURIA

Allow me to congratulate you on your success in publishing a crisp, clean and practical journal, which I always read with interest and profit. I have been in continuous practice now for thirty years, and I want to say that Dr. A. C. Wight's method of hoisting a horse by means of a rope, instead of slings, is the most practical and simple device that I ever heard of, and I would commend it to all, as any farmer or teamster usually has a rope that will answer the purpose. Then one will not need to be encumbered with bulky slings until the horse is put on his feet and the slings can replace the rope at one's leisure.

I will say to Dr. Stoner, of Villa Grove, Ill., that his device on page thirty-two of the January issue is good, but somewhat troublesome to apply, and I rarely use it. Sometimes we get a horse that has a foot so sore that one can scarcely touch it, and the animal through pain and fear will lie down on the operator. If this horse is not otherwise vicious, let the operator take hold of the foot on the inside, not on the outside as is customary, and place it on his knee, the right hind foot on the operator's left knee, or if it is the left hind foot, on the operator's right knee, and he will be surprised how easily he can hold the foot. The animal will seemingly be afraid to lie on him. Try it and be convinced.

Dr. Steffen's article on azoturia in the same number is the most interesting I have ever read on the subject, and I intend to try his treatment on my next case. His ideas are new to me, but his description of the disease and his prognosis are the best I have ever seen, and I want to say they agree with my experience here in a large city exactly. I certainly get weary when I read the testimonials of veterinarians that inject something or put some small doses on the tongue and the patient gets up at once. These cases would get well if nothing were given and the patients kept warm and quiet and just purged out.

I don't quite agree with the doctor in all his etiology. From my observation in practice and at autopsies made, I usually find plethoric, bilious animals with the liver light colored, fatty and friable and the kidneys soft and degenerated, showing that from constant overfeeding of the animal for months and may be years, the organs have become so clogged and diseased that when the "breakdown" does come the animal dies before any medicine can produce any favorable change.

A little exchange of views and experiences will be beneficial to us all, and your question box is admirable.

CHARLES WILLIAMS, V. M. D.
Philadelphia, Pa.

JOHNE'S DISEASE (PARATUBERCULOSIS) SUSPECTED IN MINNESOTA

This disease, while reported at times in different sections of the United States, still is not frequently met with, therefor I concluded it might be of some interest and benefit to readers of the JOURNAL.

The animal in question, a pure bred Holstein cow about five years of age, owned by W. N. Shanks, a breeder near Washington, Minn., was shipped in from northern Iowa during the year 1915.

On January 1, 1916, Dr. J. N. Gould and myself tested Mr. Shanks entire herd, of which this animal was a part, with tuberculin, and at this time obtained one reactor, which was disposed of, however the animal in question gave a very plainly negative reaction to the test.

On or about May 1, 1916, our attention was called to this particular cow, and it was found that she presented an abnormal looseness of the alimentary contents, although not particularly marked at this time; temperature, pulse and appetite normal, although her appearance presented an unthrifty condiiton. Thinking the trouble possibly parasitic, we had her diet changed and put on a short course of treatment, but could detect no improvement whatever.

About May 15th the symptoms were much more prominent, bowel contents fluid, temperature and appetite normal, general condition showing evidence of emaciation. We concluded to retest this animal with tuberculin but again got no evidence of a positive reaction. At this time we began to suspect the presence of Johne's disease; accordingly we isolated the animal and asked our live stock sanitary board to send a laboratory man to collect specimens for a bacteriological examination. About June 15th Dr. W. L. Boyd visited us and collected numerous scrapings from the rectal mucous membrane, which later proved to contain numerous baccili acid-fast in character and morphologically resembling the avian tubercule baccili to a great extent, and considered the causative factor of Johne's disease.

At this time this animal had been under observation about six weeks, and now presented an extremely emaciated appearance, bowel contents watery and very copious with occasionally small specks of blood and tissue noticeable, temperature and appetite normal.

Shortly after this time Mr. Shanks destroyed this animal and buried her before we were aware of it, so unfortunately we had no opportunity to make a post-mortem examination of the carcass. However, our best authorities assert that the principal post-mortem evidence of Johne's disease, aside from extreme emaciation, is the greatly thickened intestinal wall often three and four times normal thickness.

At the present time this disease is not considered curable, English authorities having reported some favorable results with iron preparations, but it is questionable if this is of any particular value.

O. C. SELBY, M. D. C.
Worthington, Minn.

PARAPHIMOSIS RESULTANT FROM A KICK

A nine-year-old gray gelding, while micturating, was kicked on the penis. I saw the case eight days later and by that time the penis and sheath were considerably swollen and there was paralysis of the retractors. The animal was not benefited by treatment and on October 25th, nearly four months after the injury had been inflicted, a portion of the penis was amputated. This, however, has not given relief; as soon as the local stimulative effects from operation had subsided, complete protrusion of the organ resulted.

The general condition of the horse is good, urination is possible only with difficulty and another amputation will be necessary before the animal may become salable.

G. W. GERBER, D. V. M.
Oklahoma City, Okla.

BRACKEN (FERN) POISONING IN HORSES

Staggers in horses caused by the ingestion of *Pteris aquilina*, the common bracken.

At a meeting of the British Columbia Veterinary Association held in the Hotel Vancouver on December 6th, a preliminary communication was made to the members of the Association by Drs. Hadwen and Bruce of the Veterinary Research Laboratory, Agassiz, on the results of their researches in regard to a disease which occurs amongst horses in the coast region of British Columbia.

During the months of January and February of last winter many horses died with what farmers have been in the habit of calling staggers. This disease is characterized by uncertain gait, loss of equilibrium, general unthriftiness, with no loss of appetite. In some small communities losses were especially heavy; in one village, out of twenty-four horses owned by eleven farmers, sixteen died of staggers, four recovered, and the remainder (four) did not take the disease. This is no doubt a larger percentage of mortality than is usually the case, but on making careful inquiries, similar cases could be found in every country district along the banks of the Frazer and on Vancouver Island. Dr. F. Torrance, Veterinary Director General, upon ascertaining these facts, gave authority for the experiments that were conducted later, and which resulted in the proof that bracken was the cause of the disease. These experiments were fully described before the Association and though they are not yet completed, it was decided that publicity should be given with a view to warning horse owners about the danger of feeding fern to their animals during the coming winter. Remedies were forthcoming, and seeing that the cause of the disease has been definitely traced to poisoning by bracken, it is hoped that the losses which occurred last winter will be obviated. The facts presented to the society are briefly as follows:

Two healthy horses were confined in a stable. One horse was fed on hay from which all the ferns had been picked, the other animal received the ferns with a proportion of hay; no other food was given to either animal and they were not allowed any exercise.

The experiment began on April 1st and on April 29th the horse which was receiving the ferny hay showed slight signs of intoxication.

This symptom (staggers) became worse until May 1st. The animal had practically lost all its sense of equilibrium and would nearly fall when made to get over in the stall. On May 2nd, it fell down and was unable to regain its feet. On the fourth it had become so ill it was killed to end its sufferings. The other horse which had received no fern remained perfectly well. A similar experiment was conducted later on with the same results. The horse to which the ferny hay was fed developed the disease and was destroyed, and the control horse remained perfectly well. A third experiment has just been completed. In this case ferny hay purchased locally at Agassiz was fed just as received, resulting in the death of the horse on the thirty-sixth day of the experiment. This animal had previously served as a control to another horse that died, clearly demonstrating that it was the bracken which was the cause of the trouble as no ill-effects were noticed in this animal when fed on the hay out of which the fern had been picked. Further experiments are under way and facts are being ascertained as to the exact toxin or poison which is probably present in bracken. The disease as it occurs on the average farm is brought about in the following manner: Fern is found in a great amount of the hay grown in the lower parts of the Province, especially so on newly cleared farms and it was on such farms that the disease was most common last winter. During the severe weather we experienced in the early part of the year, animals were confined indoors for a long period, in some districts hay was short and none too liberal an allowance given to each animal, the result being that horses which would otherwise have left the fern in their mangers were forced to eat it. (As a general rule horses do not eat bracken unless forced to, with the exception of greedy animals that eat their bedding, which often consists of the ferns they have rejected out of the hay.) These horses in nearly all cases received but little else than hay in the shape of food; where animals were given plenty of hay and roots, with occasional feeds of bran and oats, no trouble of this nature occurred, and in the city stables no cases were reported. It is evident from this that a small amount of bracken may be eaten with impunity, but that large amounts coupled with unhygienic surroundings and lack of variety in diet bring on the trouble. Careful weighing tests have been made and it was found that what is usually called ferny hay contains in the neighborhood of thirty per cent bracken. The amount required to bring on staggers was found to be about two hundred pounds, fed at the rate of five to six pounds a day over a period of some thirty days. Though the cause of this disease had not been definitely established heretofore, veterinarians had been quite successful in treating the malady if they were called early enough, and when at all possible, farmers are strongly advised to summon such professional aid as is available. Where this is not possible the animals must be treated by the farm-

er himself. The lecturers testified to valuable information which had been given to them by Drs. Tolmie and Darby, especially as regards statistics and treatment of the affection. Probably the safest form of treatment for a farmer who is obliged to treat his own animals is first of all to remove the ferny hay and to substitute a good clean hay. A dose of raw linseed oil should next be administered, taking especial care that none of the liquid falls into the lungs. Warm bran mashes and roots should be given. The horse should be well blanketed and kept as quiet as possible, owing to its nervous excitability. Warmth is a great aid in combating the affection whilst a cold, drafty stable tends to lower the vitality.

Summary

It has been proved experimentally that the so-called staggers of horses is caused by their eating the common bracken; the disease should then be called *bracken poisoning*. The disease has been reproduced by feeding bracken in both winter and summer, proving that cold is not a necessary factor in the production of the disease. However, a cold, drafty stable lowers vitality and farmers are advised to take especial care of their horses during the severe weather; to keep them warm, well supplied with roots and to give them occasional bran mashes.

Horses should not be left tied up for long periods without exercise, as this tends to constipate the animals. Above all ferns should be eliminated from the hay they are given and also from their bedding.

A Dominion Bulletin describing this disease will be issued upon the completion of the experiments.

KENNETH CHESTER.
New West Minister, B. C.

THE PLACE OF COLLEGE ATHLETICS

By L. A. Merillat, Jr., West Point, N. Y., 1st Lieut. 3rd U. S. Infantry; Foot Ball Coach U. S. M. A.

There is nothing that will make a man turn back to his Alma Mater like athletics. It is this or that particular game he witnessed or participated in that thrills him with recollections of his college days and of his former associates. College spirit (that undefinable sentiment that spells, devotion, loyalty and fidelity to the college) in its most profound and lasting form is instilled into men only on the athletic field, and show me a college with a lack of this spirit and I will show you a poor college. On the other hand, a college with a good athletic spirit breeds content and a sense of being that *makes* you loyal to the last limits.

It is, however, no idle task to start things athletic in an institution of learning; and, it is still harder to keep up the energy that started them, because the true, deep-rooted college spirit upon which successful athletics depend, does not spring up in a night, but requires years of hard work which are sure to yield their full quota of disappointments. But, by keeping overlastingly hammering away, the spirit is sure to develop, and the work thereafter will be relatively easy.

As to the forms of athletics best suited to the veterinary colleges which, I am pleased to learn, have extended their curricula to four years, I would suggest, football, baseball, basketball and an interclass track meet. With these four sports the whole year can be covered and they should blend into one another so there will be no interval between the starting points of the different athletic seasons.

To develop satisfactory teams there must be active and moral support from every man in the school, whether they belong to the teaching staff or the student body. The apathetic, the contrary, the mollycoddle, and those who say, "Oh, what's that stuff to me," pity them, for so often they are found on the "bread line" ten years later.

Support of athletics is properly divided into two classes: the active supporters, or those who try for the teams and from whom the personnel of the teams is finally selected; and, the moral supporters which are the more important of the two because each of them is a cog in the large, well oiled machine that is required to win. Just as the cogs go to make up a smooth running machine, so does the tiniest man of the school help to make successful athletics. There is a force coming out of a strong universal support from the faculty and the students that makes a team hard to beat; and, there is always a sense of weakness when this force is lacking that often leads to defeat. It is an actual fact that I have never seen a good college team win without this support, while on the contrary, I have observed many a poor team come through a season with high honors that were due largely to the backing they received from the student body. If you have never experienced the thrill of sitting in the stand and seeing your school win from a close rival, then, by all means, go out and get the thrill, for it will do you a hundred times more good than any professional contest you have ever attended. When I say "get the thrill" I mean organize and make it possible for each and every man connected with your school to receive a treat he has heretofore missed.

Football. Football has been appropriately called the king of sports. There is no game that will develop the physical and mental powers as well as this game, properly played. Football is a source of spirit, a source of broadening out an institution, a source of publicity, and a source of, things both good

and bad in athletics. It is purely a scientific game in which the team that makes the fewest mistakes wins. Two evenly balanced teams could play for a year, and if neither made any mistakes, the score would be 0-0. Football is not, as many suppose, a tussle between brawn. It is a tussle between brains and brawn, with brains as a dominating factor and brawn of secondary importance. The little active man with the clear head is the dangerous player.

Without any intention of entering into a lengthy discussion it might be said in passing, that football is a game that can only be played well and correctly after hard study and the mastering of details. Attention to detail, as in surgery, is the element par excellence in football. It is only by this attention to detail that the player finds himself at the right place at the right moment, and the spirit of "never say die" must be manifest at every turn. This spirit is more pronounced in football than in any other sport. Never to lose your morale, your fight, your feeling of confidence as to the outcome, are the things which go to make up a winning team, or for that matter, the winning army or the winning man. In football, like in any human activity, put all you have into it, extend yourself to the limit and figure up the consequences later. A famous coach of a championship football team on the eve of a final deciding game, addressed his men as follows: "Men, be fatalists if only for today. If you were ordered into the trenches to fight you would kiss yourselves goodbye. Just like that farewell kiss do I want you to kiss yourselves good-bye before entering this game." We won. This may seem foolish, but in what better words could the same meaning have been expressed? When you study, study hard; when you work, give it all you've got, and when you play, play with all that's in you. Football teaches you that, hence it is by right the real king of college sports.

Baseball. Here is a sport with many angles and turns. Because of the various classes participating, it has not the narrow front of football, and as the same careful, scientific training is not as essential as in football, this game should be very attractive to the veterinary colleges, where time for training may be limited. Although as "sport for sport's sake" it holds a less individual interest, baseball working as a unit with the student body will work wonders in ways undreamed of by men of non-athletic colleges. Needless to say that baseball requires a lesser sense of observation than football. It has, however, many qualities which commend it as a college game. In baseball individual excellence is more vividly portrayed; particular plays are more firmly impressed, and as its fine points are more widely understood it is destined to retain a high degree of popularity.

Basketball is a splendid indoor sport, and as such, it fills the winter months with contests that keep up the interest in athletics.

* * *

I trust this movement to introduce intercollegiate athletic competitions among the veterinary colleges will take root and will bear fruit. As a rank outsider who, however, has had the opportunity of observing the progress of veterinary education at close range, I am quite convinced that your onward march has been made harder by your apathy in this connection. The role your profession plays in the affairs of the world is less understood by the general public than any other profession, because your activities are only well appreciated by those whom you interest directly. The publicity that good, clean athletic sports would give you would attract attention to your particular field of endeavor from eyes that were never before turned upon you.

It goes without saying that athletics in veterinary colleges is an undeveloped field, for who has ever heard of intercollegiate competitions among them? While thinking over this subject which you have requested me to present to your readers, I am struck most by the lack of interest that has been taken in athletics by the veterinary colleges of our country. It does not matter how the subject of college athletics is approached, its devotees find the best argument all on their side. There is no sound argument against them. Colleges aim to improve and discipline the mental faculties, primarily, but it is a recognized fact that the mind does not develop farther than parallel with the body development. Just as the brain requires exercise to keep it working, so does the body; the two go hand in hand. This doctrine has been accepted as a sound one in almost all the large educational institutions in this country. Athletics train men to think quickly, and at the same time, to think accurately, and it also teaches them to think and to act collectively as well as individually, and these are cardinal attributes in any profession, in any trade or in any business.

The mistake of cramming minds with details for four years without any attention being paid to the physical welfare has been a common one in many institutions and I am quite certain that the veterinary colleges are making this very mistake today. You are evidently turning out men with over-filled minds and with undeveloped bodies to handicap their progress.—*Bulletin McKillip Veterinary College.*

DOCTOR HANDLEY GOES TO M. A. C.

Dr. John I. Handley, for the past two years assistant professor of veterinary science at the Agricultural and Mechanical College of Raleigh, N. C., has resigned his position and accepted an appointment as assistant professor in surgery, lameness and clinics at the Michigan Agricultural College of East Lansing, Mich.

Dr. Handley graduated from the Alabama Polytechnic Institute with a degree of D. D. M. in 1913. He has since been at the A. & M. College of North Carolina and has received the degree of Bachelor of Science and Master of Science. He was one of the most popular members of the faculty of the A. & M. College of North Carolina and takes with him to his new work the good wishes of all.

Aulde, of Philadelphia, is of the opinion that in all chronic pathological states of the body there is a deficiency of lime salts. He claims that prompt relief follows the administration of calcium salts in all chronic diseases, and that the convalescent period is shortened after acute ailments.

TYMPANITES OF THE GUTTURAL POUCHES

To one who has never seen this abnormality it gives rise to thoughts of apprehension. Cases of distension of the guttural ponches with air appear to be serious to the veterinarian who has had no experience with them. As a matter of fact it is usually a very benign and decidedly transcient affectoin.

We meet with this condition most frequently, almost always, in mares that have recently given birth to a foal and that have been turned out to pasture after having been confined to the stable for a long period of time, and in debilitated colts of from one to three years of age when turned out to pasture in the early spring when they must graze nearly all the time to get sufficient nourishment.

A few hours seems to be all the time required for the condition to become fully established, although as a general thing the condition is first noticed towards evening of the first day that the animal has been turned out.

It is then seen that the region over the parotid glands, the laryngeal region, and sometimes the space between the rami of the inferior maxilla are immensely swollen. If a halter has been left on the mare while she has been at pasture parts of it are deeply imbedded and buried in the swelling. When the swelling is palpated it is found to be drum-like and very tense. When force is applied to one side by pressing with the flat hand over the parotid region the opposite side bulges out in proportion. If a finger is pressed firmly into the body of the swelling and the pressure is suddenly released by quickly withdrawing the finger great resiliency is noted, no pit remains.

Near the borders of the swelling there is edema in some cases, no doubt due to interference with the circulation from direct pressure.

In cases in which the distension is exceedingly great there may be a slight degree of dyspnea. In cases showing only moderate distension there is no dyspnea. Even in cases of the most marked type the animal does not, as a rule, exhibit any signs of distress or indisposition. The symptoms are apparently limited to the tumefied condition in the region. The diagnosis must be made from

First, the history of the case; mare with foal, turned on grass after a long period of idleness in the stable; or debilitated colt as before mentioned.

Second, the nature of the swelling; pneumatic under palpation, and painless.

Third, the absence of other symptoms of disease. The temperature may be raised slightly, but not much. The pulse, if taken, must be taken at some extremity, such as from the coccygeal artery. It will be slightly accelerated.

Treatment.—In very marked cases in which there is much dyspnea immediate relief may be attempted by the exertion of a firm, steady pressure with the flat hands over both sides of the swelling.

Should this fail to give relief it need be no cause for anxiety. The dyspnea will subside markedly after the lapse of a few hours if the patient is at once placed in a single stall and tied short at the halters, so that the head may not be lowered. But by no means should the head be raised above a normal standing-level.

If it is requested that something be done further than this, an oily liniment may be prescribed with which the tumefied area may be gently massaged.

In all cases, almost without exception, coming to the attention of the writer, the swelling had completely disappeared in less than twelve hours. No recurrences have come in the cases noted.

If the condition escapes detection on the first day, or if the animal is allowed to remain in the pasture after the swelling has been noticed, a marked edema affecting the entire head may result. When this has occured the treatment consists of confinement in a single stall with the head raised. The easiest manner in which to keep the head raised in some of these cases is by means of a bridle and back-pad, using an overhead check to check the animal high. This is usu-

ally sufficient and should be maintained several hours. Downward massage, lightly done, is helpful. Cold packs may also be of benefit. Two or three doses of digitalis improve the circulation and hasten the disappearance of the swelling due to interference with the circulation.

Potter, Wis. MART. R. STUFFEN.

A CASE RECORD AND CLIENT'S ACCOUNT ON THE SAME CARD

The accompanying illustration shows a sample card that I have been using for some time. This is self explanatory. It serves me as day-book and ledger, and I always have a case history to refer to when it is necessary. My bookkeeping now consists of posting to the cash book once a month and filing the cards. There are some cards in blank form for notes and cash items that do not require history, also for expenses. These items are

OWNER

PATIENT

HISTORY

SYMPTOMS

DIAGNOSIS

TREATMENT

TERMINATION

DATES			DEBIT		CREDIT	

posted direct to the cash book and the cards filed. In this way, my cash book shows exactly what profit I make each month or year. I do not count bills receivable until I receive them.

The cards are carried in a leather book made for them. This book has my name stamped on it in case of loss. The outfit was furnished me by Louis F. Dow & Co., St. Paul, Minn., from copy I furnished them. I do not think they copyrighted it and presume they would be willing for anyone to use it who desired to do so.

Clarence, Ia. W. E. STRIBLING, M. D. C.

CEREBRO-SPINAL MENINGITIS OR FORAGE POISONING RESPONDS TO APERIENTS AND STIMULANTS

I will try to give my experience with this disease. This locality has never suffered much from this trouble, but I have had some eighteen or twenty cases. I have read about everything that has been written on the subject, and nobody seems to be able to enlighten me.

As I find this condition here, there are two distinct forms of this disease—one the excitable or violent form, which I believe to be true meningitis, because it is accompanied by a highly congested visible mucous membrane and at first there is a full hard pulse, becoming smaller and harder as the disease progresses. Animals in this condition will run through or over anything they come to. This form runs a rapid course and death ensues. As to the treatment, I haven't much to say. Veratrin will quiet these animals for a short time, but it soon loses its power, and the animal is as wild as ever.

The second or dumb form is altogether different as to symptoms, course of disease, and I presume, as to pathology. I have had three cases of the violent form or true cerebro-spinal meningitis. The rest have been in the dumb form.

As to treatment, I have used about everything that has been advocated without any beneficial results. I will set forth my treatment, under which three of five have recovered. The following are the first three cases on which I used this treatment:

No. 1. Horse staggering, in semi-comatose condition and could hardly stay on his feet.

Treatment: Three pounds magnesium sulphate, ten ounces sodium bicarbonate aromatic spirits of ammonia and alcohol, put in three gallons of warm water and the whole pumped into him through the stomach tube. In twenty-four hours this horse began to eat and drink a little and made a complete recovery without any further treatment.

No. 2. Mare walking around in an old straw shed, head elevated and bumping into every corner.

Treatment: Same as No. 1, but I had to tie this mare's head fast to the side of the shed before I could get the tube down. In about fifteen hours this mare showed some improvement and made a recovery with no further treatment.

No. 3. Three-year-old mare in very poor condition generally. This mare was lying flat on her side in a comatose condition with irregular breathing.

Treatment: In trying to pass the whole tube on this animal, she struggled around until she got up on her feet. We then steered her to a fence and tied her so she could not get away from us. I passed the tube and pumped my shot-gun prescription into her, adding digitalis to it. This animal showed no improvement for thirty-six hours but made a slow recovery after that.

No. 4 had all the symptoms of the dumb form and had been showing the symptoms for thirty-six hours before I was called. I pumped my regulation dose into him, and he died in about ten minutes.

No. 5. Gray horse showing all the characteristic symptoms and had been showing same for thirty to forty hours before he was brought to me.

Treatment: I treated this horse about 10 a. m. next morning. He seemed to be better, began to pick at his feed and drink a little water, but about 10 p. m. his head went up and he began to stiffen and died the same evening.

While I realize that my experience has been too limited to advance my treatment as a success, I know it has given me much better results than any other I have tried. I might say as to dosage that there is no danger in giving up to five pounds of epsom salt as but very few show any catharsis from it. It is not a hard matter to pass the tube on these animals, because they will swallow when the tube enters the pharynx.

I believe it to be absolutely necessary to begin treatment on notice of the first symptoms if favorable results are expected.

F. N. Gatton, D. V. M.

St. Francisville, Ill.

CALF LIVES WITH SECTION OF ESOPHAGUS MISSING

On October 12th, I was called to a nearby ranch to see a calf that was choked on an onion. The calf was in no great amount of pain, but there was some tympany present. The onion was found to be in the lower third of the neck. It could not be pushed down, but I could push it toward the mouth. I could not mash the onion and was almost stumped for a time, and not having had exactly the same thing before, I told the owner I believe it best to perform esophagotomy, to which he at once consented.

The operation was performed in the usual way, stitching the esophagus with silk. I advised the owner to let the calf have plenty of milk with an occasional egg and nothing else in the way of feed for two weeks. I returned in three days and the calf was doing fine. On the seventh day, the calf got to some dry alfalfa hay. That night a swelling was noticed at the seat of operation. The next day I was called and found the stitches in the esophagus torn loose and quite a bit of food packed in the wound. This was removed and I found the esophagus very necrotic along the edges of the incision. Three days later the entire esophagus for a space of about four inches had necrosed and one end was hanging from the wound. The wound began to heal and the calf from that day to this has gained strength. The animal drinks milk and water, eats hay and, although there is still a small opening, practically no food is lost.

Was it the hay that caused the stitches to come loose? Were they tied too tight? What would be your prognosis? Have any others had similar experiences? I am a young practitioner and would appreciate it if any reader would give me light on the subject. The Journal is always welcome reading material to me.

Colorado. F. B. W.

SHOULD THE VETERINARY PROFESSION CARE FOR ITS INDIGENT MEMBERS?

Some time ago I wrote an article on this subject which was published in this journal. I believe this is a matter that should be seriously looked into; and I again call it to the attention of the veterinarians of this great and good country of ours.

It seems to me that it would be very appropriate for the profession to take some action in this matter. Would it not be appropriate for the American Veterinary Medical Association to consider this proposition?

We are all born but not buried; we may be prosperous today, but indigent tomorrow, through no fault of our own. We are subjected daily to conditions that may maim us for life, and perchance the unfortunate one may not have accumulated enough of this world's goods to make possible a respectable burial. Something must happen and if he has taken a life associate and from such union a little family has resulted, the condition is rendered still more serious. Can we, as a body of men with a love of humanity in our hearts, disregard the woes of such unfortunates? This, my friends, is continually taking place in this country. What a blessing it would be to have some sort of a fund with which to ameliorate the hard condition of the victims. It would keep the family together, if there was one, and not let him or them become dependent upon outside charity.

Suppose the country became involved in war, veterinarians are very necessary in the army. See what has happened abroad; it is too well known to all of us to need further mention. Would it not be a great monument

to the veterinarians of America to be able to help those who so bravely went to the front; to care for those who cannot care for themselves? I sincerely believe we owe it to each other to formulate some plan for action along these lines.

I would be very glad to have suggestions pertaining to this question brought out and published through the AMERICAN JOURNAL OF VETERINARY MEDICINE.

Utica, N. Y. W. G. HOLLINGSWORTH.

IOWA VETERINARIANS HOLD MEETING AND CONFERENCE AT AMES

The twenty-ninth annual meeting of the Iowa Veterinary Medical Association, held in the veterinary department of the Iowa State College, at Ames, January 9th and 10th, was one of the most successful meetings in the history of the association. It was followed immediately by a veterinary conference, for which a majority of the members of the association stayed. This conference was under the auspices of the veterinary department of the Iowa State College and in addition to members of the faculty, the program was contributed to by Dr. C. E. Cotton, of Minnesota, president of the A. V. M. A.; Dr. V. A. Moore, of Ithaca, N. Y., a director of the New York State Veterinary College, and chairman of the executive board of the A. V. M. A., and Dr. Cassius Way, New York, chief veterinarian for the Borden Condensed Milk Co.

Thirty-Three Years in Veterinary Practice

In the president's address, Dr. Wm. Drinkwater, of Monticello, stated that he had been engaged in veterinary practice for a period of more than thirty-three years and that he could say from experience that the young man who starts out upon the life of a practitioner has a great deal of deep study and hard work before him; that his would be a strenous life. The speaker expressed it as his belief that high school graduation should be considered the very minimum of entrance requirements to a veterinary college. That he believed there was little chance for one of lesser training to comprehend the instructions given in a modern veterinary college. He stated that the days when a so-called veterinarian could "get by" with a jack knife and a bunch of nerve were gone forever.

Commenting upon the difference between the institutions at present and in the past, Dr. Drinkwater pointed out that when he attended veterinary college, two years of five or six months each was considered ample time in which to impart a knowledge of veterinary science to the student. He stated that bacteriology was then no part of the course and but the most meager attention was given to numerous other subjects now considered important. He pointed out that all the text books used at that time were written by European authors and often were not adapted to conditions as they existed in America.

Has Seen the Birth of All State Veterinary Associations

The president stated that since he began practice, thirty-three years ago, all of the state veterinary associations had been organized, with the single exception of the Illinois Veterinary Medical Association. That at the time he began practice there was not a single state in the union that had any laws governing veterinary practice and that now only four or five states do not have such laws. He said that notwithstanding the advent of the automobile and the great popularity that it has attained during the latter half of his tenure of practice, he has seen horses double in value since 1883, and that cattle also have doubled in value since that date.

Report of the Secretary

The secretary's report showed that collections in dues and initiation fees amounted to $577 during the year and that of this amount, the association has expended $543. The major portion of the expenditure being for the publication of the report of the 1916 meeting, held at Des Moines. This report was distributed at the meeting. It comprises a very creditable volume of 156 pages.

The first paper presented was one by Fred R. Maxfield on Some of the Commoner Parasites of the Intestinal Tract of Horses. This paper will be published together with the discussion in an early issue of the JOURNAL.

Periodic Ophthalmia

The next paper considered was one on Periodic Ophthalmia, by Dr. R. F. Avery. Dr. Avery stated that he had collected the data given in this paper from correspondence with other veterinarians and from his own experience, and that it showed periodic ophthalmia to be very prevalent in Iowa and that this ailment has increased markedly during the past decade.

The essayist believes that owing to the great difficulty of diagnosing periodic ophthalmia with certainty in its early stages that all affections of the eyes should be regarded with suspicion, and each one treated on the supposition that it is the beginning of an attack of periodic ophthalmia. He stated that it was his belief that heredity played an important part in the causation of this disease; but that he was also convinced that the disease was somewhat contagious, since many cases were

found on the same farm and very frequently both members of a team were affected. Further he regarded insanitary conditions and dark, illy ventilated stables as important predisposing causes of the disease.

Infection and Bionomics Important

He related an instance where one of three valueless horses was affected with true periodic ophthalmia. A portion of the material from the anterior chamber of the affected eye was withdrawn into a sterile syringe and injected into the anterior chamber of one eye of each of the unaffected horses. One of these animals was stabled in a dark, insanitary and unventilated stall and only taken out twice a day to be watered. The other was allowed to run in a lot and to have access to a clean and well lighted, well ventilated barn. In ten days the animal kept in insanitary surroundings had a typical case of periodic ophthalmia. The infected eye of the animal kept in sanitary surroundings showed a cloudiness after three or four days which cleared up and in ten days was entirely well. The essayist believes that this indicates that both infection and insanitary surroundings are factors in bringing on attacks of periodic ophthalmia.

Good Sanitation Essential in Treatment

Dr. Avery reported rather unsatisfactory results from treatment. He stated that when periodic ophthalmia appeared on any premises, his first care was to have the barn thoroughly cleaned and white washed, and sufficient windows put in to light it well. Where the animal was in the early stages of the attack, the case was treated by the injection of a dram of Lugol's solution and into the fatty pad back of the eye. He stated that many cases treated this way at the beginning of an attack showed permanent recoveries; but he was, of course, unable to say whether or not he was dealing with true periodic ophthalmia, since he did not regard it as always possible early in the attack to differentiate periodic ophthalmia from simple conjunctivitis.

Three Causes of Moon Blindness

In the discussion of this paper, Dr. W. A. Heck stated that he had had a very large experience in handling this disease and that he believed heredity, insanitary surroundings and infection were about equally implicated in its cause. He cited two stallions coming under his personal observation, a majority of whose progeny had been affected with periodic ophthalmia. One of the stallions was himself a sufferer from periodic ophthalmia. The other had good eyes. He said that his procedure on being called to a case of periodic ophthalmia was to clean, disinfect and white wash the barn. To treat the infected eye by the injection of iodin in the fatty pad and protect it from light and that he insists that the man get rid of all blind or partly blind horses on his farm at once. That he considers this latter quite important, because to his mind, infection was an undoubted factor in the spreading of this disease.

The discussion of this paper was very general; among others, the following is noted:

All Treatments Fail

DR. H. D. BERGMAN: Practically everything has been given a trial in the treatment of periodic ophthalmia and the results, I think have been quite uniformly unsatisfactory. Until we get a better idea as to the specific cause of this disease, in my opinion, we shall not progress very far in its treatment.

DR. H. D. TREMEN: I have tried iodin treatment for periodic ophthalmia and various others, and I have gone back to using the iodin injections. I use simply tincture of iodin and I think I get better results than from other lines of treatment; but at any rate, I am keeping on with it in lieu of something better. It has been my experience that cases of this ailment occur more frequently among horses that are running in stock fields than among others.

DR. H. E. BEMIS: I think it is generally conceded that periodic ophthalmia is to some extent hereditary and probably to some extent due to local conditions. I have not made any definite observations myself, but I have had a number tell me that animals that may have been affected with one or two attacks if taken to a higher altitude never show an attack after that time. That would seem to indicate that atmospheric conditions or altitude has a very marked effect upon these cases. We have, however, only a few case reports, and I do not know how it might work out on a large number of animals. Of course, we know there are some cases that will go that same way here—show a few attacks but never go blind. Possibly some of these have been observed when taken to higher altitudes. So far as the treatment is concerned, we usually consider that we can treat only the symptoms while the attack is on and relieve the congestion and the pain and lacrimation due to pain and inflammation by instilling a few drops of a solution of boric acid containing perhaps one-half to one per cent of cocain or stovain, or other local anesthetics. Sometimes we have used zinc sulphate, one to two grains to the ounce in conjunction with the cocain. We have also used the Lugol's iodin injection at the base of the eye, and in some cases the affection has never recurred after such treatment and in other cases it has, so at present so far as our experience goes

here, we are not able to say that there is any particular advantage in that form of treatment.

DR. G. P. STATTER: I think Dr. Schaefer of Tecamah, Nebraska, who read a paper on this subject at Omaha some years ago, advocated dilating the pupil with atropin and using bichlorid packs, about 1 to 1000. He claimed that he had excellent results without recurrence.

Periodic Ophthalmia Commonest on Low Lying Pastures

DR. G. W. BLANCHE: I was taking part in a discussion of this subject at Des Moines, about ten years ago. I was young in practice then, and I made the statement that I believed I found a large majority of my cases of periodic ophthalmia in horses raised on low ground, and since that time I have taken pains to study that to a certain extent. My practice is located in a place where patients are drawn about equally from the Iowa river bottoms and from high ground, and my observations have established the conclusion in my mind that I get a larger percentage, a much larger percentage of cases of periodic ophthalmia in horses pastured in these overflowed river bottoms and creek bottoms than I do in horses from higher pastures; but whether changing from low to high ground will be beneficial I am not prepared to say. I think, however, that there is something peculiar existing in low pasture land that makes for trouble and helps to propagate periodic ophthalmia, and I also agree that there must be something in the hereditary transmission of the disease and possibly in the contagious part, although I have not considered the latter seriously. I am not prepared to say whether it is contagious or not.

Shall We Breed to Affected Stallions?

DR. D. M. CAMPBELL: It seems to me that the matter of whether or not this disease or the tendency to contract it is hereditary deserves a little more serious consideration than it has been given here. I suppose there is a stallion registration law in Iowa, and periodic ophthalmia is one of the conditions that prevent a stallion from being registered. Now if the condition is not hereditary, isn't it working a hardship on the man who has the stallion affected with periodic ophthalmia to deny him the opportunity to stand him? It may mean a loss of thousands of dollars to him and we must not deprive our citizens of their property without just cause. If it is due to the condition under which the animal is kept or to injury to the eye or to infection, why should it prevent the man from registering his stallion for service in the stud?

To me the theory that the predisposition is inherited does not seem logical. Numberless times I have heard men speak of the progeny of certain sires as being predisposed to periodic ophthalmia but I have never heard of this ailment being inherited from mares. Yet it has been common in the past for owners to breed their mares that were blind even more frequently than those that had good eyes as they considered them as useful for that purpose as others. In fact when horses were cheap, about the only use farmers made of their blind mares was to raise colts from them. Dr. Heck's experience ought to be very valuable if it is followed up further to find out whether or not the disease is contagious. Did his clients scatter the disease broadcast when upon his advice they sold their affected animals?

This matter of periodic ophthalmia was made the subject of a symposium at a meeting of the Illinois Veterinary Medical Association in Peoria last July, five papers being presented on different phases of the subject by practitioners, the five of them in the aggregate having had something like 150 years' experience in practice in breeding districts. We thought we were getting a lot of experience on it. It was discussed at great length, and many of the members there very strongly inclined away from the theory of heredity as a cause. One prominent veterinarian in Illinois, and I think perhaps more than one, is trying to have that part of the Illinois registration law repealed that provides that stallions affected wih periodic ophthalmia shall not be registered for stud service. The general opinion seemed to be that it is an infectious disease, and that dark and illy ventilated barns, hard work and general ill usage are factors that aid the onset of this affection. In a rather short experience in practice in a part of the country where there were no barns and where as a consequence the horses were outside all of the time, I never saw a case of this disease. There was not a large horse population there (their beasts of burden being chiefly mules), and perhaps it is not so common there anyway. But the very fact (if it be a fact) that it was not so common there, might to a degree substantiate the statement that dark, illy ventilated barns and the bringing of horses in close proximity to one another in the same stalls, contribute to the spread of the infection. I think all the information brought out in recent meetings regarding this, has tended to show that the factor of infection at least exists. I do not mean by that that periodic ophthalmia is as infectious as foot-and-mouth disease or as hog cholera, rather that it may be communicated under favorable conditions from one animal to another.

Collect Statistics

DR. S. STEWART: Possibly one or two members here recall the fact that this association undertook at one time to gather statistics bearing upon the prevalence of this disease, also something bearing upon the conditions under which it develops. I cannot tell you just where to refer to the report of the effort made at that time, but it was published, however, and listening to this discussion here, it occurs to me that possibly the disease is widespread enough at this time to justify this association in instituting a new gathering of statistics in a systematic manner, learning the various facts bearing on each case studied, and that a committee be appointed of two or three to report on the cases investigated to this association for two or three years in succession until enough data had been gathered to enable the Iowa association to present something definite regarding the disease and possibly something definite as to the causative factor of this disease. This then would lead rationally to measures for checking the spread of the disease in Iowa. It would also serve as a guiding factor to our legislative bodies as to whether stallions afflicted with the malady should be excluded from service, also whether a mare afflicted with the disease should be permitted to breed. Both sides of that question should be made subjects for study through the combined effort of this association.

DR. J. H. MCLEOD: This is a very important matter. It has been discussed in its different phases, but I should like to add my experience with the disease. Where I am located, we have a good deal of periodic ophthalmia. I am inclined to think that the disease is due in part at least to the insanitary conditions of stables. On as many as fifteen or twenty infected farms where a large percentage of the horses have gone blind, I have not found that heredity had anything to do with it. There may possibly be a predisposition there where it develops, but usually it is found where there are bad, insanitary stables. I believe that the matter suggested by Dr. Stewart is a good idea, that a committee be appointed to go into the matter in detail, taking into consideration the disease from the standpoint of heredity, environment and so on, and if as Doctor Campbell has stated, it is not a hereditary disease, the burden ought not to be placed upon the owners of those stallions. For my part I am inclined to think that there is not very much spread of the disease from the diseased stallion. I have not see much of this disease spread from breeding mares to stallions affected with periodic ophthalmia, and we have had several of these horses in my district that I have had the opportunity to notice.

An Effective Remedy But Expensive

DR. E. L. QUITMAN: So far as the transmissibility of this disease from one animal to another is concerned, I maintain most emphatically that this is not true. In Chicago we have a great many stables where there are many horses grouped together in a very small space in insanitary, unhygienic conditions, and yet it is an extremely rare occurrence for a case of periodic ophthalmia to break out in a horse that has been in the city of Chicago over six months time and we never expect it. We do get horses from the country that have already had it. A horse in the country has one attack, and some of your gentlemen advise the owner to cash him in, and he sends him to Chicago while his eyes are clear and the horse soon comes down again with periodic ophthalmia, but we never fear it will spread. If there is any place it should spread, it would be in the Chicago stables where horses are overcrowded and ventilation amounts to practically nothing. I have watched that very closely because I have been interested in the ailment for twenty-five years.

Then we have the theory of hereditary predisposition. I should not want to breed a mare of mine of any value from which I wanted a colt of value, to a stallion that was afflicted with this disease, not because the disease itself would necessarily be transmitted, but because of the possibility of transmitting the predisposition to weakness of the eye that makes it more prone to infection from whatever source that may come.

So far as the treatment is concerned, I found one that seemed to be absolutely successful away back many years ago when the race horse was king. I agree, of course, that the standard bred horse has much better eyes and that periodic ophthalmia occurs most often in the scrub or grade horse. However, it may affect any breed. But when the race horse did have it, the owner was willing to go to any expense to ward off blindness, and it was the same with the coach horse. Back in those days when this treatment could be carried out, I stopped many a case of periodic ophthalmia with the prolonged administration of potassium iodid, before there were actual structural changes in the eye and before there were adhesions. It requires a course of from two to three months and as liberal a dosage as the age of the patient will permit of potassium iodid. The eye will clear up fine, although there is sometimes a flocculent material left in it. In that case I aided resolution by applying an ointment of nitrate of mercury, oleate of mercury diluted with lanolin and rubbed in twice daily where there were organized particles in the eye.

So far as paracentesis is concerned, where

that has been done following the first attack when the attack is not of a hyper-acute character, it does seem to have a beneficial influence. However, where the attacks are of a hyper-acute character, the treatment does not seem to be of any value. The combination of paracentesis and treatment with potassium iodid should do well together; but so far as the injection of tincture of iodin, Lugol's solution, into the orbital fossa is concerned, in my own hands that has proved an absolute failure, and I have tried it in a number of cases, although I have heard here and there a number of good reports on it.

DR. S. A. DEMING: I am getting a lot of benefit from this discussion. A client three years ago built a dam across a stream, probably seventy-five yards from his horse barn, and made a fish pond there. He has ditches around it and keeps it nice and clean, but that man has had I think nine horses develop periodic ophthalmia, and all happened since that pond was made. I am wondering if the pond has something to do with it. The horses always had good eyes until that time.

Dionin a Remarkable Eye Remedy

DR. C. J. NORDEN: The subject interests me a good deal. I have had a little experience with this disease in its various forms, and I thought it might be worth while to mention an agent here that is remarkable in its action on the eye when that organ contains an inflammatory exudate or is in a cloudy condition. This agent is dionin, which is a morphin derivative and produces its action by dilating the canals of Schlemm, thereby increasing or facilitating more rapid absorption of deposits in the anterior chamber of the eye. It does not produce any curative action in conditions of this kind, but it does materially increase absorption. It is an agent that is quite extensively used in human medicine in a weaker percentage solution. When administered to man, it will produce edema or swelling involving an entire eye in some cases. The swelling is oftentimes so extensive that the lids close completely, obliterating vision, but it is not at all injurious. In twenty-four to forty-eight hours this will disappear and will be followed by a marked absorption of the cloudiness—quite noticeable, in fact. I had to go through that reaction myself at one time when my eyes were blood-shot by reason of previous strain, and it seemed to persist for a long time, until this agent was used and it took care of things very well. The only difference in the action or reaction from the administration of this agent is that in the lower animals this swelling is not observed. It does not seem to exert such a definite or such a noticeable action, and it can be used in saturated aqueous solution or as fifty per cent of an ointment the base of which should be lanolin in order to make it more easily administered. My experience with this agent has been such that I can unhesitatingly recommend it to produce a rapid absorption of cloudiness that is not organic in the eye.

Some of the more common diseases of the heart was the subject of an interesting lecture by Dr. W. W. Dimmock of the faculty of the Iowa State College. Dr. Dimmock described at some length, the various inflammatory ailments of the heart and its coverings, giving the causes, symptoms and post mortem findings. This paper and its discussion will be published in an early issue of the JOURNAL.

Dr. A. L. Wood, Chairman of the committee on Diseases, gave a report summing up briefly the situation in Iowa at this time.

The New Anatomical Nomenclature

An unusual feature of this meeting was an address by Dr. Burton R. Rogers, dean of the St. Joseph Veterinary College, giving a brief résumé of the principal differences between the new and old anatomical nomenclatures. Dr. Rogers expressed himself in part, as follows:

Anatomical nomenclature is in a very chaotic condition. Some time ago there were three anatomies in general use. McFadyean's, Strangeways' and Chaveau's. There was some difference in the terms used for certain anatomical parts, and when men got together in associations and when students went from one school to another, confusion arose and there came to be a demand that something should be done to bring about a uniform anatomical nomenclature.

This matter was taken up at one of the meetings of the A. V. M. A. Unfortunately, few veterinarians understood what was going to be done. Pure students of anatomy and of anatomy only were given the matter in charge. I might say that at that time I was teaching in Manhattan, Kansas, and had made anatomy something of a hobby. I had formed some ideas regarding anatomy and the methods of teaching it, and I wrote Dr. Brenton, who was then president of the A. V. M. A., desiring to be placed on that committee, but I was not placed upon it, so whatever changes have occurred I do not feel responsible for anyway.

The Nomenclature Not Simplified

I wanted to make it easier. Here was my theory. I think most of the veterinarians in this country have been educated in the nomenclature of Strangeways'. Probably Chaveau came next and McFadyean third. I think everybody will consider his favorite book that which he used when he was in school, the book he slept with and got well acquainted with. It was my belief that where all three of their works used the same name that name

should be retained, where any two of these works used the same name, that name should be adopted and the term of the third author discarded; where all three works differed, I favored using Strangeways' term on account of its being more widely known. This would have brought no absolutely new terms into our anatomical nomenclature and would have made but few changes for anyone to learn. The result, however, has been a complete list of additional names and a great confusion for all. Many of you have probably picked up a Sisson's "Anatomy" and been "flabbergasted" in going through the names. The pictures appeal to you, but you do not understand the nomenclature.

For instance, a muscle, the *extensor carpi radialis,* a good many of you knew that muscle a long time ago as the extensor metacarpi magnus. Again in the case of the *common digital extensor,* all of you have learned perhaps the extensor pedis. To call it the *common digital extensor* is exactly like as if it was Dutch and you were Irish. There were not so many differences in the old nomenclature. The *common digital extensor* of Sisson is the anterior extensor of the phalanges or the extensor pedis, the simpler name to me and both McFadyean and Strangeways use it.

When you come to the hind limb, it is called in Sisson the *long digital extensor*—a difference in the fore and hind limbs. Perhaps it is a good thing to have a different term for the fore and hind limbs.

Most of you know that anything which faces forward is anterior, but according to the new nomenclature anything that faces, looks or points forward is known as the *cranial* surface—it faces toward the cranium of the animal. Thus we have the *cranial margin* of the scapula. The three borders of the scapula are the three *margi* now. The two surfaces of the scapula are now *facies,* the *facies lateralis,* which you learned as the external surface, and the *facies medialis* or *facies costalis* because it faces the ribs, which you knew as the internal surface.

Now, there is a certain muscle that runs along the neck, the trachelo-mastoideus muscle. Sisson calls it the *Longissimus capitis et atlantis.* A more common example is a certain muscle you know as the levator humeri from Chaveau and McFadyean; the name has been changed to the *brachiocephalicus.*

Some of the actual results of this uniform (?) nomenclature were a good many freshmen were unable to talk on anatomy, with the sophomores of the same school.

Just to briefly review some of the terms—anything which faces forward in the old nomenclature is the anterior. Anything which looks upward, we used to call superior or upper, and the downward was the inferior. Now the skeleton is put into a box and then in addition to that there is a sheet iron put through the middle of the animal dividing it into two symmetrical halves. Anything which looks downward to the floor of the box that we used to call inferior, is now called the *ventral* and the opposite or superior is called the *dorsal.* Anything which looks backwards toward the back of the box, we used to call posterior but it is now called *candal* because it faces the tail or toward the tail. That which looks outward toward the sides of the box, we used to call external; it is *lateral* today, and that which is faced in toward the sheet iron is called *medial.*

Just to take up a few specific differences or changes. The bone we used to call the inferior maxillary bone, is now the *mandible.* The process which we used to call the zygomatic process is now known as the *facial crest.* The styloid process of the occipital is now known as the *paramastoid process.* There are certain muscles the names of which have been changed, the stylo-maxillaris for instance, became the *stylo-mandibularis,* which is a better term.

The auditory process is now the *accoustic process.* The auditory nerve is now the *accoustic nerve.* The fifth cranial nerve we used to call the *tri-facial* is now the *trigeminal.*

In the scapula, for instance, the process we used to know as the coracoid process is now known as the *tuber scapulae.* The process on the spine of the scapula is now the *tuber spinae.* The fossa Strangeways called the antea spinatus fossa and the postea spinatus fossa are now the *supraspinous fossa* and the *infraspinous fossa.* What we used to call the cartilage of prolongation is now the *scapular cartilage.*

Coming down to the humerus, we divide it into the four surfaces—*facies lateralis, facies cranialis, facies medialis* and *facies caudalis* The little tuberosity on the one side, which we called the small internal tuberosity, where the latissimus dorsi and teres major muscles are inserted, is now the *teres tuberosity.* Turning to the deltoid tuberosity and the ridges that descend from it, we have not the *cresta humeri.*

Take the heart for instance,—all of you remember what the auricle of the heart is. Now you might come into Dr. Murphey's class here and you hear him ask a student to describe the *right atrium.* He has asked for a description of what you understand to be the right auricle. *Atrium* is now the name for the *auricle.* There is no anterior aorta—it is the *common brachiocephalic artery.*

I believe some day the spleen will be known

as the *lien*, the kidneys as the *nephra* and the heart will be called the *cor*. The large metacarpal and large metatarsal arteries will perhaps be known as the *digital arteries*. They will break up into two, the *lateral* and *medial digital arteries*.

President Pearson Welcomes the Veterinarians to the College

The evening session of the first day of the meeting was attended by a considerable number of the faculty of the Iowa State College and the meeting was opened by addresses of welcome by president of the college, R. A. Pearson and Mayor of Ames, Hon. Geo. E. Baker. President Pearson's address revealed that he possesses a broad insight into problems of veterinary science. Of the aims of the College, he said: "At this institution we claim no abnormal knowledge. We know there are people outside of this institution who know as much as we do and many of them more, but we do claim that we are making a very earnest and honest effort to get together bits of knowledge wherever we can find them, developed perhaps here and there and other places, developed in the factory, on the farm and wherever it may be, and some of them developed here on this campus—we claim we are endeavoring to get together all these bits of information that we can. We are trying to select the gold from the dross; then we are trying to sort the gold and give it out again as best we can. There is a great need of increasing knowledge in this poor old world of ours. The more we go on, the more we allow our population to increase, the more land we cover in our efforts, the more our problems increase."

Mayor Baker assured the visiting veterinarians that they were welcome to Ames and that Ames is in reality a little city, with 100 blocks of perfect pavement, one of the finest modern hospitals in the state, and a municipally owned electric light and water plant.

Dr. G. W. Blanch ably replied to these addresses of welcome.

Quitman Lectures on Therapeutics

The principal address of the evening was by Dr. E. L. Quitman of Chicago, on the subject of therapeutics. Dr. Quitman's address was largely a plea for more and better discrimination in the use of drugs. He urged veterinarians to eschew preparations the exact contents of which were not given on the label. He said that with but very few exceptions, secret remedies were fraudulent preparations, and that there can be no reason for keeping the formula of a preparation advertised to veterinarians a secret except an unworthy one.

He emphasized that all such preparations were sold at enormous prices and that the combinations were often ridiculous from a therapeutic standpoint.

Dr. Quitman stated that the problems of the country and city practitioner differ widely and cited azoturia as an example, stating that with any ordinary treatment, usually ninety per cent or more of the cases occurring in country horses recovered, while in many seasons, almost as high a percentage as this of city horses succumbed to azoturia.

Speaking of sodium cacodylate, Dr. Quitman said that he regarded it as a most generally useful preparation, and very widely applicable in veterinary practice. He urged that those present investigate its many curative properties.

He classed Dakin's antiseptic, or chlorazene, as a thoroughly reliable antiseptic.

Dr. Quitman's address was discussed by Drs. Bergman, Bemis, Stewart, Campbell, and others. Regarding the use of pharmaceutical "specialties," Dr. S. Stewart said: Our veterinary practitioners are depending too much upon the use of proprietary remedies with high sounding names about which they know little or nothing. I very heartily approve of Dr. Quitman's remarks and his suggestions that we be not led astray in the use of these compounds, but that we learn to make up our own, understand our own materia medica and apply such remedies as the individual case indicates. There are different factors in every case and every therapeutist should want to take advantage of that difference, and he should not be in such a hurry to get away from his case that he will provide himself with preparations about which he knows nothing simply to save time. He should not want to get away quickly and get the money regardless of the results he has achieved.

Following the discussion of Dr. Quitman's address, Dr. L. H. Pammel, professor of Botany of the Iowa State College presented his paper on recent notes on poisonous plants. Owing to the late hour, this paper was read by title only. It will be published in an early issue of VETERINARY MEDICINE.

Poor Disinfection the Rule

Dr. G. A. Johnson, chairman of the committee on sanitation, reported in part as follows:

We are drifting along in a pretty heavy fog on the proposition of disinfection. I mean by that, on general disinfection, disinfection in the field. It is an easy matter to talk about disinfection, but it is another matter to have it properly carried out. We are all very well aware of the fact that there probably is no more dangerous proposition, no more ready method by which a disease can be carried over

long distances than by infected railroad cars. It is an easy matter for us to say that all railroad cars should be cleaned and disinfected. Gentlemen, I wish to clear the fog a little here if I can.

Car Disinfection Not Worth the Cost

Our proposition is this, that when you do anything, are you going to gain results that will compensate for the time and expense of doing the work? We very often say that we ought to do so and so without taking into consideration the cost or the results. I have not the exact figures, but the receipts of live stock at the Sioux City stock yards the last year probably amounted to about 100,000 cars. Sioux City is a comparatively small stock yards city. A reasonable sum for cleaning and disinfecting a car is $2.00. So with 100,000 cars to disinfect, that means $200,000, and you can go on up. So far as I am aware there has not been any contagious or infectious disease spread at the Sioux City yards this year. Why? Simply because they didn't happen to get any there, except hog cholera. We have some hog cholera there, but the regulations are that in shipping out they must be shipped in a clean and disinfected car. The point I want to bring out is this—would it pay the livestock industry to demand the cleaning and disinfecting of every car. Would the results that would be obtained justify the expense? You can say the railroads would pay it, but ultimately the livestock industry pays it. It is a serious question in my mind if it would pay to require the cleaning and disinfection of all stock cars going from the yards to the country.

Then if you are going to require that, it is just as necessary that you require the disinfection of the stock yards at both ends. It would be of little value to clean and disinfect a car and take it out and unload it in an infected yard at its destination. Any farmer, shipping stock, or in fact any shipper, can upon request get a clean, disinfected car to ship his stuff from his stock yards to his town or from one town in the state to another, provided he makes the request in time and pays for the expense of cleaning and disinfecting.

On the other hand, I am equally strongly of the opinion that a little more attention should be given at the stock yards relative to the receipt of infected stock. So far as I know, at the present time about all that the government is requiring of their inspectors at these public stock yards is looking for hog cholera. I do not think any particular attention is paid to a number of contagious and infectious diseases, among which I might mention infectious ophthalmia in cattle and some other diseases. When a car was found having animals with diseases of this nature, the railroad company would have no serious objection to disinfecting that car; and in that would accomplish very nearly as much as by requiring the disinfection of all cars.

Farm Disinfection a Chimera

The disinfection of the farms for the purpose of eradicating a disease from those farms, is in my judgment a complicated problem. It is an easy matter to say to the farmer "Clean up and disinfect." That is simple, but as for its being done, it is a question in my mind whether you are gaining much result or not.

Theoretically it should be comparatively easy to clean and disinfect a farm and the buildings therein; but practically, it is very difficult, if not impossible. Cleaning up is always in order and of benefit in proportion to the thoroughness with which it is done. Disinfection as usually carried out, is a delusion and frequently conducive of more harm than good.

Disinfection to be dependable must be thorough, and include all hay, litter, feed, porous boards, partitions, mangers, yards, fences, and even fields and pastures.

Care must be used in the selection of the disinfectants. No one disinfectant is good for all purposes.

Is there any more lamentable picture than that of a veterinarian clothed with the authority of the state or federal government, after having diagnosed a communicable disease and given instructions relative to its handling, spoiling all his good work by simply ordering the farmer to clean and disinfect his premises, and leaving him to carry it out unaided? If disinfection is to be done, it should be done properly, and someone should be there to direct the process who has a knowledge of how to do it.

Gibson Sees Virtue in Car Disinfection

DR. J. I. GIBSON: There are some things in the report that I commend. I do not think however that Dr. Johnson gave the question of car disinfection fair treatment. To start with, he placed the price of car disinfection too high. The prices that prevailed during the outbreak of foot-and-mouth disease were not too high for the conditions that were met with in the cleaning and disinfection of cars—cars that had not been cleaned until the floors were rotting out of them. The railroad men today admit that the enforced cleaning and disinfecion of cars during the foot-and-mouth disease was a benefit to them and to their cars. It was a fact that in every trainload of stock that they hauled to Chicago or other markets, one-third of the actual load was manure, waste and sand. This was responsible for a good many of the hot boxes, delays, and deterioration in the cars. The average cleaned out of cars

was between 4,000 and 5,000 pounds of this infected filth that was being transported up and down the railroads by these companies; any economical business man can see this was a great waste of motive power and resulted in unnecessary wear and tear on rolling stock. They have since admitted, and it was admitted by railroad men in the sanitary meeting in Chicago that it was worth the cost to the railroad companies to clean these cars and save the rotting of the cars themselves by this manure that remained in them from week to week and month to month. I want to say that these cars should be cleaned and disinfected every time they are unloaded, and it will pay the livestock men of this country to have that kind of car disinfection. That is what they have in the Dominion of Canada. It was thoroughly explained at the Chicago meeting referred to by Dr. Fred Torrance. I think one of the most important steps in the prevention of disease of livestock is the cleaning and disinfection of cars. There is no use emphasizing farm disinfection or any other kind of disinfection so long as these infected cars travel up and down the line carrying stock out and stock in. We have demonstrations where we believe steers for feeding have been transported in such cars and have carried on their legs and flanks sufficient infection to produce hog cholera on the farm after arriving there. This matter of sanitary cleaning and disinfecting must include the cars, the yards and the farm premises.

It is no use to do one of the three and leave the others undone. Anything done in disinfection fairly well is better than none at all. I think this is a very important matter and that this association should emphasize the wisdom of car disinfection, public yard disinfection and the disinfection of farms as well.

Legislative Prospects in Iowa

In presenting the report of the committee on legislation Dr. J. I. Gibson said in part:

"The most important bill that is in process of construction is a bill looking toward the eradication of bovine tuberculosis in the state. It will probably set a time, two or three years hence, when milk may not be sold or used from any but tested cows. It will provide for the appraisal of cattle before they are tested with the proper description of the cattle before it is known which animal in the herd may be a reactor. In any case, if an animal shows no lesions of tuberculosis in the killing room, the owner receives the full appraised value of the animal. On animals that show lesions but are passed by the federal inspector as fit for food, I think the bill will recommend the payment of seventy-five per cent of the value, and on such animals as have generalized tuberculosis and are consigned to the tank, only twenty-five per cent of the appraised value will be paid. The reactors will be turned over to the state department as soon as the test is finished, so there will be an end to the dillydallying about disposing of tubercular animals.

Appraisal Limit High for Grades

"The bill as it now stands, places the maximum appraisal that may be made on a pure-bred animal at $300 and the maximum on a grade animal at $150. One of the objections to the tuberculin test is that animals are condemned that do not have the disease. It seems if the law provides when a mistake is made the owner will be paid the full value of the animal, it probably strengthens the measure. In any 100 animals condemned as reactors, there should not be more than five that are not diseased. We have veterinarians who report one hundred per cent lesions in the killing room of those they have condemned, but others do not have as good a record as that.

"If this bill becomes a law those who are dealing with the measure have all thought that the *per diem* for the veterinarian doing the testing ought to be $10.00. The present *per diem* of $5.00 is a financial or economical joke. No man who has any practice or business can afford to leave it and work for the state at $5.00 a day.

"We have some statistics on the killing of cattle and hogs in Iowa. The one big problem is the tuberculosis in the Iowa hogs. The packers in order to protect themselves are penalizing certain communities. Some places they pay one price and in other places they pay another. Their penalties in localities on the price of hogs range from thirteen to twenty-five cents a hundred. There are nine counties in the vicinity of Waterloo, from which hogs have been shipped to Waterloo, where the loss per hog was 62 cents. We know that tuberculosis in the hog is largely due to the fact that the hog follows the cattle. I have done some figuring with my pencil, and I figure it costs Iowa farmers $5,000,000 a year to allow their hogs to run behind cattle."

Control of the Use of Tuberculin

Asked about restrictions on the use of tuberculin Dr. Gibson said:

"I think that the provision is that the manufacturer must report his sales and the person using it must report the use of it. Then, of course, a layman has no right to test cattle under the Iowa law. If we find him doing it, we can get him. The fellows you refer to are not testing cattle; they are plugging cattle We had a very interesting talk by Dr. J. G. Rutherford of Canada in Chicago at the U. S.

Live Stock Sanitary meeting regarding testing cattle in Great Britain. He told us about an instance where they were testing some cows for a man in Scotland. In the morning they found the temperature somewhat elevated; at 10 o'clock it had gone down, but at noon it was up again. It appears the man had been using some sort of powders, which Dr. Rutherford told us about on these cows, but when he went into family worship, his wife snuggled up to him and asked if he thought it was right to do that. So after the prayer was over, the man concluded not to give any more of the powder and temperature went up. So there are various ways of affecting the test without using tuberculin, but if we can cover the tuberculin that is the one to touch."

DR. D. M. CAMPBELL: Dr. Rutherford offered to give the formula for those powders to any one who could furnish a certificate of good moral character. I see Dr. Gibson did *not* get the formula. Dr. Gibson makes such good speeches that I hate to criticize him. I think it was perhaps a *lapsus linguae* when he said some veterinarians of the state had a record of lesions in 100 per cent of the animals condemned, but the records of some others were not so good. I do not believe that is a good record. The good test is not the one that does not now and then condemn an animal that is not tuberculous. The good test is the one that picks out all the diseased animals in a herd. The test is not quite perfect; I do not think anyone should feel concerned over occasional cases of condemned animals failing to show lesions of the disease when slaughtered. It is a matter of grave concern though when diseased animals are left in a herd to cause the owner further loss on subsequent tests, to say nothing of the danger to the consumer of products from a dairy in which this unfortunate circumstance has happened.

What Constitutes a Good Tuberculin Test

Perhaps it is not possible to weed out all the diseased animals from many herds by means of the tubercluin test; certainly it is not possible unless one take just about all of those border line reactors often termed "suspicious." The man who leaves in a herd only the undoubted non-reactors will occasionally condemn a healthy animal, yet his test is greatly to be prefered to the man who gets three classes from a test, reactors, "suspicious" and healthy.

There should be no suspicious cases. If the test does not indicate that the animal is healthy for the good of the owner and for the good of the public, by all means condemn it. When a mistake is made, pay the owner the full appraised value.

Horses a Good Price for Another Five Years

At a session at the horse pavilion of the college Prof. W. H. Pew, of the Animal Husbandry Department, of the Iowa State College, gave a lecture and demonstration in judging horses and cattle. Preliminary to his discussion of breeds and types Prof. Pew said:

All of the men who have been dealing in horses in past years, whether they be farmers, importers or feeders or whether they be shippers or what not, are interested in the draft horse business with particular reference to what it is going to be in the future. That is something, of course, that none of us actually know. Some feel just conceited enough to think that they do know, but I question very much whether a man ought to make very definite statements on this point. But there are some certain conditions that exist today and that we look forward to as possibly existent in the future that ought to give us a clue as to what the horse business might be.

During the past two years, there have been taken out of the United States practically a million head of horses and mules —the latest figures that I could procure are something in the neighborhood of 800,000 head of horses and 200,000 head of mules, which probably would have an average valuation in this state of $200 each. In other states they would be cheaper, because cheaper horses were taken. As a matter of fact, Iowa has supplied the best class of horses for army use. I think that is generally conceded—that the best class of horses obtained by the army inspectors have been obtained some place in this state.

I think our statistics show that we have about twenty-one million horses in the whole country, and that means then that in two years there have been taken out just one-twentieth of our horses, which means, of course, a place left vacant, because the horses so taken out of other states filled a place in his state just as the horses did in this state. There is necessarily a place for every horse, and these vacant places will probably be taken by younger horses that are coming on.

War Affected the Market for Light Horses

Again we will hear people discuss this point and say that it really has been a godsend to this country that the horses have actually gone, and to a certain extent that is true; but I want to say to you that, while Des Moines is the only place in this

state where I have seen the inspection take place, I noticed that they took a class of horses, weighing 1,250 to 1,600 pounds, in working condition every one, with good color markings and ranging five to ten years of age, which means that these horses have been work horses, and just what horses will take their place is a question. We do know that the horse that weighs 1,000 to 1,200 pounds had a very poor market up to the time when the war occurred.

We know that the automobile has supplanted the roadster to such an extent that a good light horse is rather a scarce article in the country; I mean a high class light horse. The question rises, supposing the war should cease today and no more exportation take place, it means that this number of horses have been taken from the country and their places filled, which, of course, would be rather an easy task with the number of horses in the country; but still at the same time if we go through the country in some sections we find fewer colts this year than ever before—farmers have not bred the mares. That would not hold true in all sections, but it does in some, and the question of increase in the horse market is really going to be a deciding factor in this business.

The Effect of the Small Tractor an Enigma

With every motor company in the country preparing to make motor trucks, preparing to make delivery cars of every fashion, one just begins to wonder where even the draft horse is going to land in the next five or ten years. We do find this that a number of companies in the cities have displaced their horses with trucks, and we do find that figures show us that for certain kinds of hauls in the city the motor truck can do the work more economically than the horse. On the other hand, there are certain classes of hauling where the horse is more economical than the truck. These are figures that we have to take for what they are worth, and if they are accurate, if they are dependable, it would seem that for certain classes of hauling in the city, say for short, heavy pulls instead of long, rapid pulls, the horse would have a place on the market in the city. I cannot help but believe that the big draft horse—I say a big draft horse, one that will weigh from 1,700 to 1,900 pounds—is going to have a market, but I am going to make my limit for a good market to the next five or six years. Then if we happen to meet again, we can discuss the point for the future and see just where we are.

I think that the motor truck is going to be a big factor in the horse business in the future. It is bound to be, but it is a question, of course, of a certain period of development, just as has been the case with the automobile. It is a question of whether or not the tractor people can develop for the ordinary 160 acre or 240 acre farm a tractor that will be satisfactory. If that is the case, the tractor, the small tractor, will supplant a part of the horses, but even at that, there will necessarily have to be some horses on the farm. If tractors do prove successful, if they are economical for the farmer, and their up-keep is not too great then necessarily we will have to look out. The draft horse business is bound to have a big slump.

What is the draft horse market today? Not what it has been. There has been a slump in the past few weeks in the draft horse business. I think possibly that may be due to one or two conditions. At a great many inspection points of the foreign governments they have laid off for the winter season; in other words, they are not taking so many horses. They are not taking any horses in this state. That may explain the slump we have had. I know that six weeks ago horses were selling at $25.00 a head more than at the present time. Of course, with the spring the market ought to improve, and even at farm sales horses that are going to work on farms ought to bring more money.

The Demand for Pure-Breds Good

Whenever the draft horse market is off, the business, of the breeder of pure bred horses suffers, but I have noticed that this year there has been a bigger demand for draft horses for breeding, or as big a demand as at any time previously. The men who handle good horses tell me they have sold as many good horses last fall and this year as they have in previous seasons, and there seems to be a keener demand for the better class of stallions. There has been an excellent market for pure-bred mares. Just why that should be, one doesn't know, but if you talk with the men who handle mares, they say our farmers are going to use more pure-bred mares for their work purposes. All right, I hope for the good of the draft horse business and for the good of the farmers and for the good of all concerned that the horse business does stay up, and really I should like to be very optimistic about it, and I am going to be as long as I possibly can without being too much so—I like to be conservative in it. But I think for a period of years, say four or five years, the draft horse business is going to be good. The light horse business, of course, has been shot to pieces.

Specialty Classes Have a Bright Future

A good matched pair that can go high and of the proper conformation, really brings a splendid price today. That is explained by the demand from certain sections for that class of horse and the very limited supply. It is a difficult thing to go out into the country and find a man who has a matched up pair that can be sold to the high class trade. The men engaged in that kind of business a few years ago are now doing one of several things—these men who were dealers are either buying horses for export or they have gone out of business altogether and have dropped from sight.

The saddle horse demand is good and will continue to be because he is not produced in excess numbers, and there is a demand in cities even by people who own cars, wealthy people, for really good going, high grade saddle horses.

Perhaps some of you have noticed that the race horse has this past season sold for as much money as he ever sold for before. I am just interested in noticing the sale price of foals with trotting records, is as high as before, and the keen demand for young ones, particularly young ones of breeding. All colts that give promise are easily sold for racing purposes.

The ponies, of course, are going to have a demand, and as I see it, there is no reason why they should not. They fill a special purpose, and any horse that fills a special purpose is going to have a good demand.

Following this, Prof. Pew presented to the association a number of draft horses, including a mare and a gelding that had won first prizes in their classes at the recent International Live Stock show at Chicago. He discussed the points of these animals that he regarded as good at length, giving his reason for classing them as he did.

Following this, two specimens of baby beef were presented and quality and points discussed.

Dr. J. H. McLeod presented a paper on observation of outbreak of hemorrhagic septicemia, which was discussed at length by a large number of those present. This paper and the summary of the discussion will be published in an early issue of the JOURNAL.

The New Officers

Following this the election of officers was taken up, and the following were elected for the ensuing year: President, G. P. Statter, Sioux City; first vice-president, W. W. Bronson, Wyoming; second vice-president, Tom Gidley, Malvern; secretary-treasurer, H. B. Treman, Rockwell City; member of Executive Committee, J. H. McLeod, Charles City.

Hog Cholera Control in 28 Counties

On the subject of Hog Cholera Control Work in Iowa, Dr. J. S. Koen in charge of B. A. I. Hog Cholera Control Work of that state, said:

It is hard to get the farmers interested unless hog cholera is present in the neighborhood. I was just wondering if it is not that way with the profession too. When it begins to wane, our interest in it begins to lessen. However, we are operating now and carrying on control work in twenty-eight counties in central and western Iowa. The method is to organize the farmers, local veterinarians and business men into animal industry associations so that they may be brought together in a common interest to eradicate hog cholera and save the hogs. We believe that if the veterinarians, into whose hands must come the care of the health of the stock, the stock raisers, who produce it, and the business men, whose interests are so intermingled and intertwined with the stock raising business, come together in the same organization, we will accomplish a great deal more than we have been able to accomplish by working with the veterinary organization on one hand and the farmers' organization on the other. It is the getting together of all these interests that we should be interested in. Of course, it is expected that this organization should co-operate with the federal and state authorities that are undertaking to assist in the work.

Last July extensive work was undertaken in this state. We made a tour visiting the farmers at various places and entering upon a co-operative working agreement, which has been lived up to.

We believe with the adoption of by-laws that are being presented to the various organizations that the work will go forward to the mutual benefit of all concerned. The leaders in these organizations are set forth as the stock raisers and the local veterinarians, who shall co-operate with the federal authorities. The objects of the association are to make a systematic, co-operative effort for the control of hog cholera, but the association should not stop there. They should also work for the control of other infectious diseases of livestock and then enter upon the next big field for the veterinary profession, promote the sanitary conditions on every farm. The veterinarians who are awake to their opportunities are no longer going to be satisfied with just being practitioners. They are

going to be sanitarians as well. That is the field that we hope will be opened up to the profession through the agency of these organizations.

Co-operation Spells Success in Hog Cholera Control

We have incorporated in these by-laws that since the serum treatment is the only means known, this association recommends its use in every outbreak of the disease.

If the veterinary profession will get behind the movement in Iowa today to control cholera with the livestock interests of Iowa, we need not confine our attention from this date on to control measures. We know that we can control it. We know that it has been controlled, but if this association would go on record and if the membership of the veterinary profession of Iowa would link their earnest effort with the stock raisers of Iowa and they link their efforts with yours, we could then talk eradication, and I think eradication will then be possible, and I hope we may achieve it.

Asked if he approved of the vaccination of hogs when no cholera was in the locality, Dr. Koen said:

"I do not approve of the simultaneous inoculation of hogs promiscuously in a territory free from cholera, except under the most rigid restrictions. I think any man who wishes to immunize his herd by the simultaneous method should be given that privilege, but if his herd is in a locality where there is no cholera and no likelihood of there being any, the greatest safeguards should be thrown around this herd so the balance of the neighborhood will be protected.

"I think it is unwise to use the simultaneous method on any farm without quarantines. But a quarantine must be a practical quarantine. It need not be one that interferes with farm life under farm conditions. The quarantine of the herd itself is all that is necessary. It is exceptional that a more rigid quarantine is necessary. I do not believe there is a word more abused and more misunderstood than the word 'quarantine,' and we need to consider it more than we have in the past. Quarantine is of two kinds, voluntary and involuntary. The involuntary for an exceedingly careless, belligerent man in the neighborhood, is necessary and should be imposed."

Dr. H. S. Murphey, of the college faculty, gave a valuable lecture on some points of the "Surgical Anatomy of the Foot." This lecture was illustrated by lantern slides.

Better Not Printed

The evening of the second day of the meeting was spent in the ball room of the Sheldon-Munn Hotel, where the members were entertained and served refreshments. Various soloists, including Dr. Gibson, furnished the musical part of the program, while many of the veterinarians present and others skilled in story telling, kept the audience in a constant uproar until a late hour.

A Veterinary Conference

In lieu of the clinic usually held on the last day of the meeting, most of those who had attended the meeting stayed for the "Conference for Veterinarians" under the auspices of the Veterinary Department of the college on January 11th and 12th.

The program of the conference for January 11th was as follows:

Anatomy and Physiology of the Udder of Cows, by Dr. H. S. Murphey.

Pathology and Bacteriology of the Udder, by Drs. W. W. Dimock and Chas. Murray.

Judging and Types of Dairy Cattle, by Prof. L. S. Gillett.

Dairy Farm Sanitation (illustrated lecture), by Dr. Cassius Way of New York.

The Bacillus Abortus and Tests for the Detection of Abortion in Cattle, by Drs. Chas. Murray and L. E. Willey.

Abortion: Its Complications and Their Treatment, by Dr. H. E. Bemis.

Production, Handling and Distribution of Clean, Sanitary Milk (illustrated lecture), by Dr. Cassius Way.

On January 12th the program was as follows:

Abortion from the Practitioners' Standpoint, by Dr. C. E. Cotton, of Minneapolis.

Correlation of Our Present Knowledge Regarding Infectious Abortion in Cattle, by Dr. V. A. Moore of Ithaca, N. Y.

Tuberculin Tests for Tuberculosis, by Dr. R. R. Bolton.

Tuberculosis: Its Prevalence, Lesions and Interpretation of Tests, by Dr. V. A. Moore.

Therapeutics of Acute Mastitis, by Dr. H. D. Bergman.

Laboratory tests have been unable to establish anything but a rather variable surface disinfecting power for formaldehyde.

Compared with iodin, even in watery solution, alcohol is not antiseptic at all. Its value is only in cleansing and bringing about asepsis.

Doses of Hexamethylenenium of seven grains three times a day never yield more than 1 to 5,000 solution of formaldehyde, which is the minimum required to kill coli bacillus.

Dr. Carlson says that bitters have no effect on gastric secretions and probably do not really influence the appetite.

MISSISSIPPI STATE VETERINARY MEDICAL ASSOCIATION

The annual meeting of the Mississippi State Veterinary Medical Association held at Clarksdale on January 9th and 10th, 1917, was, without a doubt, the best ever held in the state. The papers and addresses, the large clinic at Dr. W. L. Gates' hospital and the entertainment by the City of Clarksdale could not be excelled.

The members met at the Elks Club Tuesday morning at 9 a. m., where the mayor, Hon. J. C. McNair, welcomed us to the city with a short address, which was ably responded to by Dr. W. P. Ferguson, of Grenada. Dr. E. M. Alderman then read his paper on Choke in the Horse. Dr. R. C. Moore, St. Joseph, Mo., gave an address on the Requisites for Successful Surgery, and was followed by Dr. L. A. Merillat of Chicago on Field and Hospital Surgery. Dr. Moore and Dr. Merillat gave well prepared addresses covering the field of surgery in a very thorough manner.

At the afternoon session Dr. John Oliver read a paper on the Surgical Treatment of Hernias. Dr. B. M. Davenport gave a report on the Serum Treatment of Anthrax prior to Dr. W. H. Dalrymple's paper on Anthrax. Dr. Dalrymple covered the subject of anthrax and his paper was thoroughly enjoyed by the members, especially those in the sections of the state where anthrax was prevalent last year.

Owing to sickness Dr. N. C. Nelson was not present, but Dr. H. K. Wright of Mulford & Company replaced him. Dr. Wright told us about the preparation of hog cholera serum and took up the various phases of vaccination. Dr. H. Chadwick spoke on Tick Eredication and What It Means to the Veterinarian. We were told of the work and the difficulties that had been met and that by January, 1918, the state of Mississippi would probably be free from the Texas fever tick.

Dr. S. L. Stewart of Kansas City gave an interesting address on Navel Ill, illustrating his paper with lantern slides, showing the various conditions that were met in the disease.

Tuesday Night, January 9, 1917
Business Session

We were called to order by the president, Dr. James Lewis. Twenty-four of our 48 members responded to the roll call. Owing to the length of the minutes they were approved without reading. The treasurer then gave his report showing a balance in the treasury of $135.89.

The president's address reviewed the veterinary situation in the state. Dr. Lewis mentioned especially the fact that the county farm demonstrators and members of the medical profession were doing a great deal of veterinary practice.

The executive board then gave their report and recommended for membership the following men who were elected, viz.: R. H. Mohlenhoff, C. W. Denman, A. I. Jones, J. W. Burras, F. L. Parse, B. T. Huston, C. McMillian, T. S. Mason, W. J. Lacy.

Considerable discussion was brought up about the farm demonstrators, students of the A. & M. College, and members of the medical profession vaccinating livestock for anthrax, cattle for black leg, testing cattle for tuberculosis, using virus for the simultaneous vaccination of hogs, castration of colts, etc. The matter was finally dismissed by the president appointing Dr. J. A. Beavers, Dr. W. P. Ferguson and Dr. John Oliver to draft resolutions to present to Mr. R. S. Wilson, in charge of the country farm demonstrators in Mississippi; Hon. P. P. Garner, president Mississippi Livestock Sanitary Board, and the president of the A. & M. College, and a copy to be presented to the veterinary journals for publication.

Dr. James Lewis of Greenwood and Dr. J. A. Beavers of Canton were elected to serve four years on the examining board. The following officers were elected to serve the association for the coming year: Dr. H. Chadwick, president; Dr. W. R. Edwards, vice-president, and Dr. E. S. Morton, secretary-treasurer.

By vote it was decided to hold the next meeting on the second Tuesday and Wednesday of January, 1918, at Meridian, Miss.

Wednesday, January 10, 1917
Clinics

The entire day was used in clinical work. Some thirty-five animals were gathered together by Dr. Gates for operations and diagnosis. Following are the operations performed and the veterinarians performing same:

Gray horse mule—Fistula on inside of right hind leg between hock and stifle joints, by Dr. O. M. Norton.

Bay horse mule—Fistula of withers, by Dr. L. A. Merillat.

Bay gelding—Fistula of withers, by Dr. L. A. Merillat.

Sorrel mare—Tenotomy, by Dr. John Oliver.

Black mare—Ringbone, by Dr. L. A. Merillat.

Bay mare—Extracting teeth and trephining sinus, by Dr. Merillat.

Bay mare—Spavin—cunean tenotomy, by Dr. L. A. Merillat.

Pig—Double scrotal hernia, by Dr. S. L. Stewart.

Gray mule—Fistula of withers, by Dr. John Oliver.

Castration of Ridgling boar, by Dr. L. A. Merillat.

Bay mare mule—Fistula of withers, by Dr. L. A. Merillat.

Bay mare mule—Fistula of withers, by Dr. John Oliver.

Dog—Removal of eye and replacing with glass eye, by Dr. Oliver.

The balance of the clinic was for diagnosis and treatment. Dr. Gates showed us a mule that had been giving milk for about two years. There were several cases of lameness; one horse with sleepy staggers; a horse with a broken hip; one horse with cyst in the gluteal region; a mule with crooked feet; a dog with mange, etc.

The banquet at the Alcazar Hotel brought the meeting to a successful close and it was voted by the members that this was the best meeting that we have ever held.

Drug and instrument displays by Sharp and Smith, The Abbott Laboratories, H. K. Mulford Co., and John T. Milliken & Co. were present. These displays were large and appropriate and received much favorable comment by the members.

E. S. NORTON, V. M. D.,
Greenville, Miss. *Secretary.*

The San Francisco Veterinary College will inaugurate a four-year course of seven months each, beginning September 17, 1917. Catalogue may be had free by addressing Dr. L. J. Anderson, Dean, 1818 Market street, San Francisco, Cal.

VETERINARY SHORT COURSE IN NORTH CAROLINA

We just closed our one week's short course for graduate veterinarians on January 13th. While we were somewhat disappointed in the number attending from North and South Carolina, those attending enjoyed greatly an interesting and profitable course. The special features were: Diagnosis of Lameness and Surgical Clinics, by Dr. R. C. Moore, president of the St. Joseph Veterinary College; Milk Inspection and Practice Upon Food Producing Animals, by Dr. J. P. Turner, Food Inspector, Washington, D. C.; The Greater Need for Veterinarians to Inform Themselves on Agricultural Subjects if They Would Gain the Confidence of Their Clients, by Dr. Tait Butler, Associate Editor of *Progressive Farmer* and former state veterinarian of North Carolina, Memphis, Tenn.

G. A. ROBERTS.
Raleigh, N. C.

The Mississippi Valley Veterinary Medical Association held their annual meeting at Galesburg, Ill., January 5th. About thirty veterinarians were present. After the present business session, the veterinarians went to Monmouth, Ill., where a clinic was held at the hospital of Dr. R. P. Frans.

G. R. TINKHAM, General Manager — J. H. COPENHAVER, D.V.M., Laboratory Supervisor

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Anatomy and Physiology

1. Describe the alimentary canal of the cow.
2. What are the cellular elements of the blood and what are their functions?

Pathology

1. In what diseases of domestic animals is the skin affected?
2. What composes the exudate of serous inflammation?
3. Define myocarditis; exostosis; septicemia; ascites.
4. What diseases other than acute infectious diseases may cause hemoglobinuria;

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Meat Inspection

1. What lesions may simulate tuberculosis in cattle, sheep and swine?
2. How can an inspector tell from the carcass whether an animal has been slaughtered in health or died from some infectious disease?
3. What can an inspector do with meat intended for export which is found to be diseased?
4. Name the diseases in which the spleen is markedly affected and describe its appearance in one of them?

Anatomy and Physiology

1. Describe the meninges or covering of the brain and spinal cord.
2. Describe the structure of the kidney and give its function.

Pathology

1. In what diseases of cattle is inflammation of the serous membrane a characteristic lesion?
2. Define caries; embolism; anemia; metritis.
3. Give causes and symptoms of metritis. Is an animal so affected fit for food?
4. Describe the appearance of intestines in nodular disease of sheep and with what may it be confounded?

Meat Inspection

1. In a dressed carcass what conditions would lead one to believe the animal was diseased?

G. I. BLANCHARD, D. V. S., President
E. B. HOLLECKER, D. V. S., Vice-Pres. and Lab. Super.

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2. Give the post mortem lesions of anthrax.

3. After the injection of tuberculin what condition would lead you to suspect the disease?

4. What is the limit of meat inspectors' authority in transportation of diseased meat from one state to another or into District of Columbia?

Anatomy and Physiology

1. What is the difference between arteries and veins and what influence does their structure have on the circulation of the blood?

2. Give structure relations and function of thoracic duct in bovine?

Pathology

1. Define: (a) degeneration; (b) edema; (c) hemoglobinuria.

2. Describe the union of bone.

3. Describe fully the pathological anatomy of lobar pneumonia.

4. Describe fully the inflammation of the kidney.

Meat Inspection

1. Name the diseases of swine that would render the flesh unfit for food and give the antemortem and postmortem appearance of one.

2. Name all the diseases affecting the blood of an ox that would render the flesh unfit for food and give postmortem appearance.

3. Describe fully the appearance of a lymphatic gland affected with tuberculosis.

4. Give the rules governing inspection of pork for interstate and foreign trade.

Anatomy and Physiology

1. Describe the circulation of the kidney.

2. Give the difference between the humerous of the ox and of the horse.

Pathology

1. Give the pathology and cause of Texas fever.

2. Give the channels of entrance of tuberculosis and what organs first show signs of the disease.

3. Give the difference between ordinary bovine pneumonia and contagious pleuropneumonia.

4. Is the flesh of anthrax animals safe for food after being cooked and give reason for answer?

Meat Inspection

1. Give the signs of pregnancy and advanced pregnancy in cow and swine.

2. Give appearance of carcass exclusive of viscera in anthrax; Texas fever, and hog cholera.

3. Name five contagious diseases that are liable to come under the notice of meat inspectors and give symptoms in living animals.

4. Give difference in appearance of meat of horse and ox.

Anatomy

1. Describe the heart, also the arteries leading to and from it.

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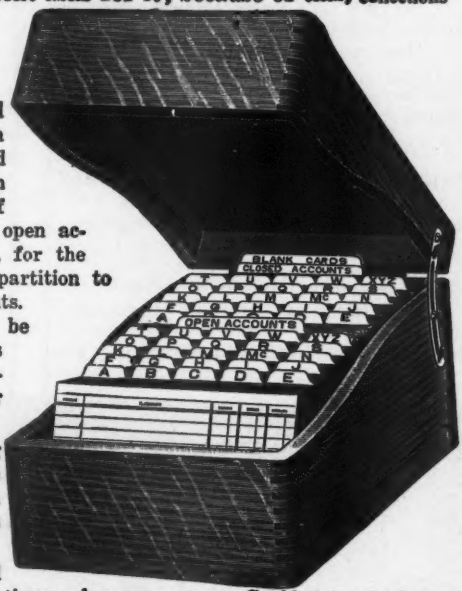

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American Journal of Veterinary Medicine

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2. What are the functions of the liver? State fully.

Pathology

1. What is fatty degeneration of the heart and what causes it?
2. What is the most characteristic change in swine plague and how you positively diagnose it?
3. What is anemia and in what disease does it occur?
4. What important parasites are found in sheep and what diseases do they produce?

Meat Inspection

1. If hemorrhages are found in dressed beef or pork what disease would you suspect?
2. Could the early stages of tuberculosis be detected in dressed beef? Explain why.
3. How can you detect pregnancy in cows or swine?
4. Give principal features in act of Congress approved March 5, 1891.

(*Continued next month*)

KANSAS VETERINARIANS ENDORSE VESICULAR STOMATITIS QUARANTINE

The following resolution was adopted by the Kansas Veterinary Medical Association, at its recent convention at Wichita:

WHEREAS, an outbreak of vesicular stomatitis in cattle in the country tributary to the public stock yards of Kansas City and St. Joseph, during November, 1916, that so closely resembled foot and mouth disease that to properly safeguard the live stock interest from that dreaded disease, it became necessary to quarantine such stock yards and stop the movement of live stock until proper laboratory and inoculation tests could be carried out to definitely determine the nature of said disease;

THEREFORE, BE IT RESOLVED, by the Kansas Veterinary Medical Association in session assembled that we fully endorse the action taken by the officials of the Bureau of Animal Industry, state officials and others interested in the transportation of live stock, in the action they took in promptly enforcing the quarantine laws to properly protect the great live stock interests of our country;

BE IT FURTHER RESOLVED, that we consider any less stringent action on the part of said officials in protecting our live stock interests would have been a gross neglect of duty;

THEREFORE, BE IT FURTHER RESOLVED, that we pledge our hearty support to such officials in the performance of their duty and all similar duties in the future.

(Signed) C. H. DOYLE,
O. O. WOLF,
E. B. HOLLECKER,
Committee on Resolutions.

Wichita, Kans., January 4, 1917.

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ASSOCIATION MEETINGS

The information given below is up-to-date and has been furnished by the secretaries of the various associations listed. Secretaries are requested to supply us data regarding their associations after each meeting; otherwise, the association will necessarily be dropped from the list. We ask secretaries to kindly co-operate with us in keeping before the members of their associations the date and place of the next meeting.

Name of Association	Date of Meeting	Place of Meeting	Secretary
Alabama Vet. Med. Assn.			C. A. Cary, Auburn, Ala.
Alumni Assn., Col. of Vet. Med., O. S. U.		Columbus, O.	W. R. Hobbs, O. S. U., Columbus, O.
Alumni Assn., N. Y. State Vet. College	June 10, 1916	New York	P. K. Nichols, Port Richmond, N. Y.
Alumni Assn., U. S. Col. Vet. Surg.	April 14, 1917	Washington, D. C.	Chas. M. Mansfield, 1344 Newton St., Washington, D. C.
American Vet. Med. Assn.	Aug. 20-23, 1915	Kansas City, Mo.	L. A. Merillat, 1827 Wabash, Chicago.
Arkansas Vet. Med. Assn.		Clarksdale, Miss.	R. M. Gow, Little Rock.
British Columbia Vet. Assn.	Sept. 20, 1917	Vancouver, B. C.	Kenneth Chester, New Westminster, B. C.
B. A. I. Vet. Assn. of So. Omaha	3rd Monday of month	So. Omaha, Neb.	J. W. Giffee, c/o B. A. I., So. Omaha
California State Vet. Med. Assn.	2nd Wed. in Mch., June, Sept., Dec.	Petaluma, Cal.	F. M. Hayes, Davis, Cal.
Central Canada Vet. Assn.	3rd week Jan. 1918	Ottawa, Ont.	A. B. Wickware, Experimental Farm, Ottawa.
Central N. Y. Vet. Med. Assn.	Last week in June and Nov.	Syracuse, N. Y.	W. B. Switzer, Oswego, N. Y.
Chicago Vet. Society	2nd Tues. of month	Chicago, Ill.	A. A. Leibold, 4515 N. Robey St., Chicago.
Colorado Vet. Med. Assn.		Denver, Colo.	I. E. Newsom, Ft. Collins, Colo.
Connecticut Vet. Med. Assn.		Hartford, Conn.	A. T. Gilyard, Waterbury, Conn.
Eastern Iowa Vet. Med. Assn.	Dec. 13	Muscatine, Ia.	Jno. Tillie, Muscatine, Ia.
Genesee County Vet. Med. Assn.			W. J. Houden, Flint, Mich.
Genesee Valley Vet. Med. Assn.	July	Rochester, N. Y.	I. H. Taylor, Henrietta, N. Y.
Georgia State Vet. Assn.	Sept. 18, 19, 1917	Columbus, Ga.	Peter F. Bahnsen, Capitol Bldg., Atlanta.
Hudson Co. Vet. Practitioners' Club	Monthly	Jersey City, N. J.	B. D. Blair, 782 Montgomery St., Jersey City, N. J.
Idaho Assn. of Vet. Graduates		Boise, Idaho	C. V. Williams, Blackfoot, Idaho.
Illinois State Vet. Med. Assn.	July 18, 19	East St. Louis, Ill.	L. A. Merillat, 1827 Wabash Ave., Chicago.
Illino Vet. Med. Assn.	April, 1917	Collinsville, Ill.	L. R. McKinley, Freeburg, Ill.
Indiana Vet. Med. Assn.		Indianapolis, Ind.	A. F. Nelson, Indianapolis, Ind.
Iowa Vet. Med. Assn.		Ames and Des Moines	H. B. Treman, Rockwell City, Ia.
Kansas Vet. Med. Assn.		Wichita, Kan.	J. H. Burt, Manhattan, Kan.
Kentucky Vet. Med. Assn.	June 20-21, 1917	Shelbyville, Ky.	D. E. Westmorland, Owensboro, Ky.
Keystone Vet. Med. Assn.	2nd Tuesday of month	Philadelphia	L. B. Davis, 857 E. Girard, Philadelphia.
Lake Erie Vet. Med. Assn.	1st Tuesday in Dec.	Norwalk, O.	N. D. Backus, Elyria, O.
Los Angeles Vet. Med. Assn.	3rd Wed. of month	Los Angeles	J. A. Dell, 16th & Pacific, Los Angeles.
Maine Vet. Med. Assn.		Augusta, Me.	M. E. Maddocks, Augusta, Me.
Manitoba Vet. Assn.		Winnipeg, Man.	W. Hilton, 275 James St., Winnipeg.
Massachusetts Vet. Assn.	4th Wed. each month	Worcester in Sept.; Boston rest of year	E. A. Cahill, Boston, Mass.
Michigan State Vet. Med. Assn.	1st Tues. & Wed. after 1st Mon. in February	Lansing, Mich.	W. Austin Ewalt, Mt. Clemens, Mich.
Minnesota State V. M. Assn.	2nd Tues. & Wed. Jan.	St. Paul	G. Ed. Leech, Winona, Minn.
Mississippi State Vet. Med. Assn.	January 8-9, 1918	Meridian, Miss.	E. S. Norton, Greenville, Miss.
Mississippi Valley Vet. Med. Assn.	July 7, 1916	Galesburg, Ill.	W. Lester Hollister, Avon, Ill.
Missouri Valley Vet. Assn.		St. Joseph, Mo.	R. F. Bourne, 1336 E. 15th, Kansas City.
Missouri Vet. Med. Assn.	Last week in July	Neosho, Mo.	C. D. Folse, 1336 E. 15th St., Kansas City
Montana Vet. Med. Assn.	Sept. 26-27, 1917	Helena, Mont.	A. D. Knowles, Missoula, Mont.
Nat'l Assn. B. A. I. Employees	2nd Mon. in Aug., 1917	Omaha, Neb.	S. J. Walkley, 185 N. W. Ave., Milwaukee.
Nebraska Vet. Med. Assn.	2nd Tues. & Wed. in Dec.	Lincoln, Neb.	S. W. Alford, Lincoln, Neb.

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Name of Association	Date of Meeting	Place of Meeting	Secretary
New York State Vet. Med. Society	Aug. 2, 3, 4	Brooklyn, N. Y.	C. P. Fitch, Ithaca, N. Y.
North Carolina Vet. Med. Assn.	June 26, 27, 1917	Charlotte, N. C.	J. P. Spoon, Burlington, N. C.
North Dakota Vet. Assn.	July, 1917	Fargo, N. D.	W. J. Mulroony, Havana, N. D.
Northeastern Indiana Vet. Assn.		Ft. Wayne, Ind.	C. R. Baumgartner, Arcola, Ind.
Northwestern Ohio Vet. Med. Assn.	Feb. 21	Toledo, O.	Paul E. Wood, Ottawa, Ohio.
Ohio State Vet. Med. Assn.		O. S. U. Columbus, O.	F. A. Lambert, care O. S. U., Columbus.
Ohio Valley Vet. Med. Assn.		Terre Haute, Ind.	C. I. Fleming, Terre Haute, Ind.
Oklahoma State Vet. Med. Assn.	Oct. 23, 24, 25	Oklahoma City	R. C. Smith, Enid, Okla.
Oregon Vet. Med. Society	June, 1917	Probably Salem, Ore.	B. T. Simms, Corvallis, Ore.
Pennsylvania State Vet. Med. Assn.		Harrisburg, Pa.	E. H. Yunker, 2344 N. 18th, Philadelphia.
Rhode Island Vet. Med. Assn.	2nd Tues. Jan.		U. S. Richards, Woonsocket, R. I.
Schuylkill Valley Vet. Med. Assn.		Reading, Pa.	C. R. Potteiger, Reading, Pa.
South Dakota Vet. Med. Assn.		Lake Madison	S. W. Allers, Watertown, S. D.
Southeastern States Vet. Med. Assn.		Atlanta, Ga.	G. A. Roberts, West Raleigh, N. C.
Southern Aux. Cal. State Vet. Med. Assn.		Los Angeles	J. A. Dell, 16th & Pacific, Los Angeles.
S. W. Michigan Vet. Med. Assin.	January, 1918	Niles, Mich.	L. A. Minter, Niles, Mich.
Tenn. Vet. Med. Assn.	Nov., 1917	Columbia, Tenn.	F. R. Youree, Lebanon, Tenn.
Texas Vet. Med. Assn.		Not decided	E. M. Wiggs, Greenville, Texas.
Twin City Vet Med. Society	Once a month	St. Paul	C. C. Palmer, St. Paul, Minn.
U. S. Live Stock Sanitary Assn.		Chicago	H. S. Ward, St. Paul, Minn.
Utah Vet. Med. Assn.		Logan, Utah	E. P. Coburn, Brighton City, Utah.
Veterinary Assn. of Saskatchewan	March 15, 1917	Regina, Sask.	R. G. Chasmar, Hanley, Sask.
Vet. Med. Assn. of New Jersey	2nd Thurs. in Jan.	Trenton, N. J.	E. L. Loblein, New Brunswick, N. J.
Vet. Med. Assn. of N. Y. City	1st Wed. ea. mo. except July, Aug., Sept.	New York City	R. S. MacKellar, 351 W. 11th St., N. Y.
Vet. Med. Assn. of Geo. Washington Univ.	1st Sat. each month	Washington, D. C.	C. W. Rippon, 2115 14th St., N. W., Washington, D. C.
Vet. Med. Society Wash. State College	1st and 2nd Tues. ea. mo.	Pullman, Wash.	Claude Holden.
Virginia State Vet. Med. Assn.	July 12, 1917	Norfolk, Va.	W. G. Chrisman, Blacksburg, Va.
Washington State Vet. Med. Assn.	June, 1917	Pullman, Wash.	Carl Cooder, Bellingham, Wash.
Western N. Y. Vet. Med. Assn.	4th week, June, 1917	Buffalo, N. Y.	F. F. Fehr, 36 Prospect Ave., Buffalo.
Wisconsin Vet. Med. Assn.		Madison, Wis.	W. A. Wolcott, Madison, Wis.
York Co. Vet. Med. Society	1st Tues. after 1st. Mon. of each month	York, Pa.	E. S. Bausticker, 335 Newberry, York, Pa

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Goshen, N. Y. J. F. De Vine.

Dr. Charles Rogers, aged forty-eight, a veterinarian of Francisco, Ill., died of diabetes, January 24th.

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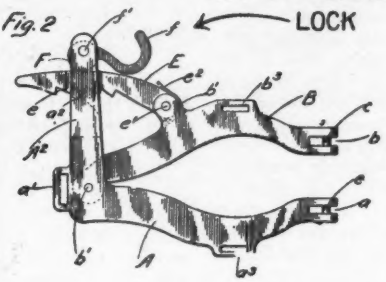

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SOUTHWESTERN MICHIGAN VETERINARIANS COMPLETE ORGANIZATION

Sixteen practicing veterinarians from Cass, Berrien and Van Buren Counties met at Benton Harbor, Mich., on January 25th and completed their organization which had its inception at a meeting held at Niles, Mich., in the early part of December. The association will be known as the Southwestern Michigan Veterinary Medical Association, and is open for membership to any graduate practicing veterinarian registered under the state of Michigan.

The following interesting program was presented, with the calling of the meeting to order at 10 o'clock:

"Production and Use of Anti-Hog-Cholera Serum" (illustrated by stereopticon), Dr. C. H. Hays, B. A. I. Veterinarian.

"The Veterinarian's Interest in Legislation, 1917" (and always), Dr. G. W. Dumphy, State Veterinarian.

Business Session.

Luncheon at 12 o'clock at Hotel Eastland.

1:30 o'clock.

Clinical Demonstration (technic of uterine and ovarian examination per rectum, and also uterine irrigation through use of special instruments), Dr. E. T. Hallman, State Pathologist.

A lively interest was taken in the meeting and the discussions were lengthy. All sixteen veterinarians in attendance became members of the Association. The regular meetings will be held two each year, during January and August.

L. A. WINTER, *Secy.-Treas.*

MEETING OF ALUMNI ASSOCIATION OF THE GRAND RAPIDS VETERINARY COLLEGE.

On January 10th and 11th occurred one of the largest and best meetings that have ever been held by the Grand Rapids Veterinary College Alumni Association. The place of meeting was the auditorium of the college, and the members who attended were very enthusiastic in their praise and stated that they expected to be here at the next one and that they would bring their friends.

The meeting was called to order by President Dr. Hugo Cornehl, of Detroit, who gave a short address in which he discussed the importance of infectious diseases. The program was then taken up as follows:

"A Few of the Many Cases I Have Failed to Diagnose," Dr. E. C. Goodrich.

"Tetanus: Treatment With and Without Antitoxin," Dr. H. Kersten.

"Regional Anatomy of the Head," Dr. J. M. Miller.

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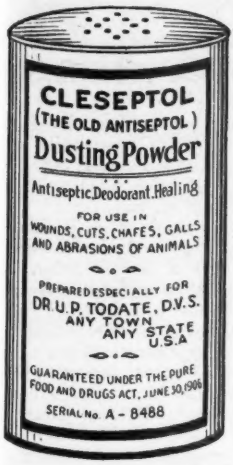

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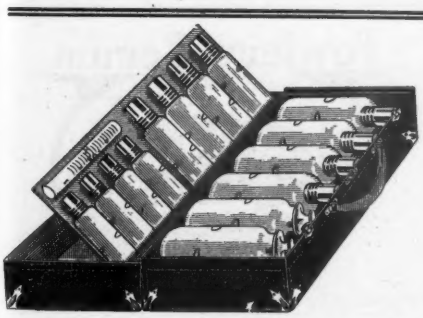

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Each paper was very fully discussed and it was necessary to defer the discussion of the last paper until the following afternoon.

In the evening the members of the Alumni Association were entertained by the college with a theater party at the Empress Theater. Every ticket handed out was used and apparently the Empress manager must have known we were going to be in town, as a very fine bill was presented and enjoyed by every one.

The morning of the second day of the meeting was devoted to a number of clinics, and the entire time allotted was taken up by a large and varied clinic.

The afternoon meeting was called to order at 1:30 and the business meeting was the first consideration. Dr. J. W. Hansen, Committee on Necrology, gave the following reports: Death of Dr. Thomas Thompson, Dr. Roy Bearss, Dr. O. H. Thomas and Mrs. Branson.

The election of officers then followed, and the following officers were elected: President, Dr. Reuben Rath; vice-president, Dr. L. L. Miller; secretary-treasurer, Dr. C. S. McGuire; Committee on Necrology, Dr. J. M. Miller; program, Dr. H. L. Schuh; resolutions, Dr. A. J. Fries, Dr. Glen Scoville and Dr. A. H. Harrison.

The literary program then followed and the discussion of Dr. Patterson's paper was taken up. The following papers were then presented and given thorough discussions:

"Dairy Inspection," Dr. B. R. Huston.

"Price Cutting—Its Practice and Remedy," Dr. A. H. Harrison.

"Impaction of the Rumen and Its Surgical Treatment," Dr. F. A. Spade.

Grand Rapids, Mich. C. S. McGUIRE, Secretary.

CENTRAL CANADA VETERINARY ASSOCIATION

The Fourteenth Annual Meeting of the Central Canada Veterinary Association was held in the board of trade rooms, Ottawa, Ontario, January 18th, the meeting being called to order at 8:30 p. m.

The date chosen coincided with that of the Ottawa winter fair and thus afforded out-of-town members a double attraction.

It was a representative gathering of eastern Ontario practitioners, numbering in all about fifty. A slight departure from the ordinary conduct of the meeting was made, the customary reading of papers giving precedence to the introduction of subjects previously allotted to individual members and the practical and scientific discussion of the same gave evidence of the rapid advance in the standard of veterinary education.

Many important resolutions were adopt-

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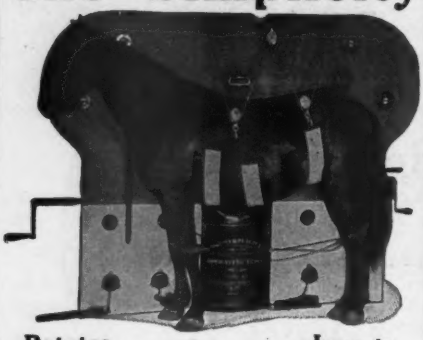

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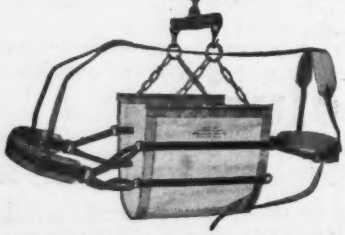

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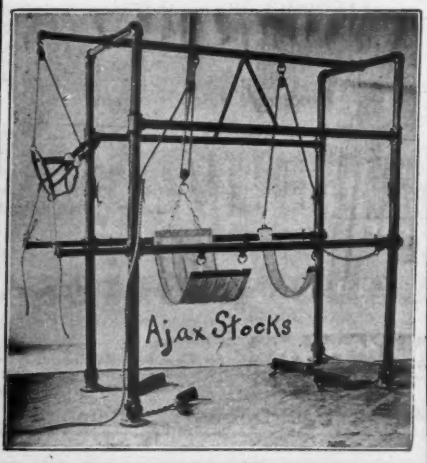


ed, one dealing with plans for a larger social gathering next year.

A motion was also passed appointing as honorary president of the Association, Dr. F. Torrance, Veterinary Director General, the same being heartily endorsed by the members present.

Dr. A. E. Grange, Principal of the Ontario Veterinary College, was to have been the guest of the evening, but unfortunately found it impossible to be present, a letter from him expressing his regrets being read by the president.

As a testimony to the untiring efforts of the executive, a motion was unanimously adopted reappointing the president, officers and council *en bloc* with the exception of the secretary-treasurer, Dr. H. D. Sparks, who voluntarily resigned to assume a position on the executive board.

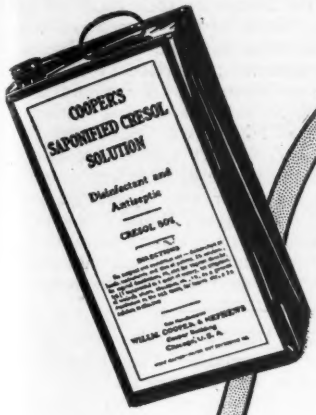
The executives for the ensuing year are as follows:

Honorary President, Dr. F. Torrance, Ottawa; President, Dr. Geo. Hilton, Ottawa; Vice-President, Dr. S. L. O'Hara, Shawville; Secretary-Treasurer, Dr. A. B. Wickware, Ottawa; Councillors: Drs. H. D. Sparks, Ottawa; A. E. James, Ottawa; C. H. Higgins, Ottawa; R. Barnes, Ottawa; J. B. Hollingsworth, Ottawa; Lt. Col. A. W. Harris, Ottawa; R. T. O'Hara, Maxville; P. W. O'Hara, Manotick.

SWISS GOVERNMENT EXTERMINATES FOOT-AND-MOUTH DISEASE BY SLAUGHTERING INFECTED ANIMALS.

As a result of the adoption of a Federal plan of combating the foot-and-mouth disease of cattle similar to that employed in the United States, the Swiss Government has succeeded in practically exterminating the malady from its country, according to Vice Consul James L. Burrell, of St. Gall, Switzerland.

The Swiss agricultural interests suffered severely from foot-and-mouth disease for a number of years, a large number of the animals either perishing or being so weakened by the malady that they had no economic value. The cattle-raising districts are dependent on exportation of the animals to adjacent countries and this business was greatly disorganized because of the prohibitions placed by such countries on importations of the cattle on account of the disease. Various efforts were made separately by the various cantons to combat the disease, each in its own way, sometimes with injury to neighboring districts; but all remedies and rules and regulations were in vain. Finally a Federal veterinary bureau was established and took up the work against the disease without regard to cantonal boundaries, adopting the practice of slaughtering all infected cattle. Through this method success eventually has been obtained. At first this general slaughter-



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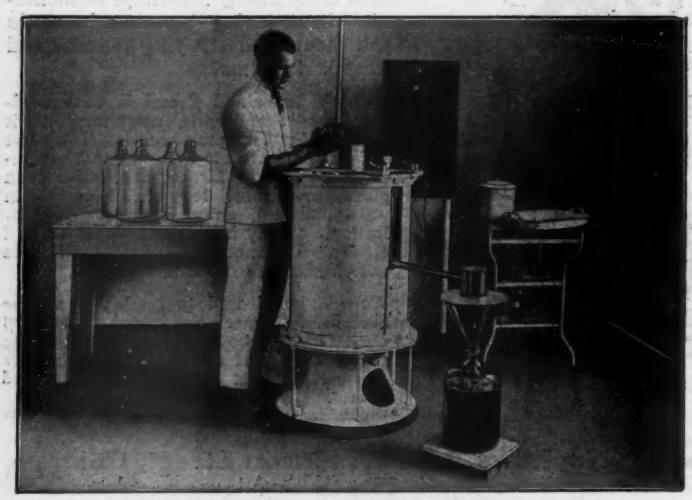
ing met with great opposition from farmers and from veterinarians of the old school, but the success was so apparent that all prejudice was overcome.

The principal slaughtering of infected cattle was begun about the time of the outbreak of the present European war. Swiss scientists pronounced the meat fit for food, and since no prejudice was manifested against it, much of it was fed to the troops. In the United States, dealers and consumers have been unwilling to handle or eat the meat of animals affected by foot-and-mouth disease, and as a result the animals slaughtered in the campaigns against the malady have been destroyed.

The chief problem in the extermination of foot-and-mouth disease in Switzerland hinged on the practice of keeping the cattle in the valleys in the winter and pasturing them in the mountains in the summer. Each spring when cattle were taken into the highlands, foot-and-mouth disease would break out in many herds and run its course during the summer. After apparently having regained their health, the cattle would be gathered into the valleys for the winter. In many places the disease would then again break out, later dying down, but only to attack the animals anew when they returned to the mountains. The reason for this cyclical course was found to be carriers of the infection—animals which after their recovery harbored the virus of the disease on their hoofs or in their bodies. Much of the success of the Swiss in eliminating foot-and-mouth disease from their boundaries is ascribed by the veterinarians of the country to the elimination through slaughter of these moving carriers. It was found in hundreds of cases that infected animals, even after apparent complete recovery and most careful disinfection, still harbored the germs for several months, and in many cases even longer. While it is anticipated that the disease may appear sporadically in the future, the authorities feel that they now know how to deal with it effectively.

The Southern Illinois Veterinary Medical and Surgical Association (non-graduate) met at Centralia, Ill., January 2nd and 3rd, Dr. Hockman, of Iola, was elected president; Dr. Bundy, of Virden, vice-president, and Dr. W. H. May, secretary and treasurer.

Congressman Steele, of Sioux City, Iowa, introduced a bill into the house which was passed January 18th, authorizing the secretary of agriculture to regulate the preparation of viruses, serums, toxins and like products for domestic animals. As originally presented, the measure implied that although the department of agriculture had



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Received my copy of "Lameness," by Dr. Lacroix. I consider it the most practical book in my library. Studying this book has increased my ability in handling lameness generally over fifty per cent.

Teutopolis, Ill. B. L. LAKE.

The Illinois Supreme Court issued an execution on January 25th, against Mr. and Mrs. Durand, of Lake county, for $23.25, representing Supreme Court costs arising from foot-and-mouth disease outbreak, during which the Durand herd was slaughtered by government officials.

Only 36 hogs out of a total of 630 herds vaccinated were lost during cholera outbreaks in Dakota county, Minnesota, from January 1, 1915, to December 1, 1916, according to the report of the county agent. The vaccination cost the farmers $8,910. There were twenty-seven outbreaks of cholera during that time.

Dr. Ira Dilley, of Roseville, Ill., has announced himself as a candidate for appointment as state veterinarian.

Dr. A. O. Bonnell, of Loveland, Ohio, has a pack of man-trailing bloodhounds, which may be hired on reasonable terms for catching criminals. He states when a crime is committeed to keep all knowledge of it from the public so a crowd will not collect; send for the dogs at once; and keep all persons away from tracks or articles handled by the criminal.

A man at Mildred, Mont., lost two horses in a peculiar manner. He kept his auto in the barn and one cold day he started the car and went away letting the motor run to warm up. When he returned to the barn, one horse, valued at $2,500 was dead and another one died soon after. A veterinarian who was called informed him that the animals were suffocated by the gasoline fumes from the car.

Dr. A. T. Peters, of Peoria, Ill., was reelected secretary of the Illinois live stock association, at their annual convention, held in Champaign, January 10th.

Dr. Joseph Wardell, of Mt. Clemens,

DR. L. B. GRAHAM, President and Gen. Manager
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Mich., veterinarian for the Detroit Creamery Company, discharged a man employed in the dairy, and the man attacked him with a knife. The doctor was slashed several times but the wounds were not serious.

The elimination of foot-and-mouth disease in cattle in the United States in 1915 cost $9,000,000. Of this sum the United States government paid $4,600,000 and the states where the disease was prevalent, the remainder.

Dr. C. W. Gates, who has been assisting Dr. H. A. Pressler, at Fairbury, Ill., for the past eight months, has opened an office for practice at Baylis, Ill.

Dr. L. G. Clark, of Nevada, Mo., has been reappointed as deputy state veterinarian.

Dr. R. R. Claybaugh recently sold his practice at Elmwood, Ill., to Dr. H. R. Simkins, and has moved to Victoria, Ill., where he has established an office for practice.

Dr. J. P. Bushong, of Lake Charles, La., will have charge of tick eradication operation in Jeff Davis parish. An appropriation of $5,000 was recently made for furthering this work, and a compulsory dipping ordinance was passed to go into effect April 1st.

Dr. H. C. Rinehart, of Rushville, Ill., is planning to build a modern veterinary hospital at that place in the near future.

Three farmers near Grandville, Mich., are taking the Pasteur treatment as a result of pulling teeth from a hog. The hog was sick and the farmers thought it might do good to extract some of its teeth. The hog died and Dr. Jacob Vredevoogd was called. He sent the head to Ann Arbor where it was found the animal had rabies.

A mass meeting called by the mayor of Battle Creek, Mich., on January 8th, for the purpose of hearing the views of farmers of the county concerning the tuberculin test, resulted in a declaration by the milk producers that they refused to submit their cattle to the tuberculin test. They stated they will establish a cheese factory or milk condensing plant at Battle Creek to care for the milk supply if the city commission passes an ordinance providing for the test.

Dr. Harry Severs has disposed of his practice at Batesville, Ind., and accepted an appointment with the Bureau of Animal

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Industry, at Chicago, where he resides at 4832 Calumet Avenue.

The New York state breeders' association met at Syracuse, N. Y., January 8th, 9th and 10th. Among the speakers on the program was Dr. U. G. Houck, of the Bureau of Animal Industry, who spoke on the foot-and-mouth disease. It was pointed out during the meeting that there are millions of acres in the state suited to sheep raising and since this country depends on the foreign supply for 600,000,000 pounds of wool annually, it was urged that the legislature should be asked to pass measures to do away with marauding dogs which are at present a menace to sheep raisers. It was stated that New York is twenty-sixth in rank in hog raising with 799,000 head of hogs, having a value of $9,000,000.

Dr. J. W. Wilson, of Palatine, Ill., died at the home of his son, Dr. B. W. Wilson, of Woodstock, Ill., January 10th. The son states that had his father lived until February 11th, he would have been 76 years old, but he did not look to be over 55. The son is a graduate veterinarian, and he says that while his father was a non-graduate, yet the old doctor was well posted on

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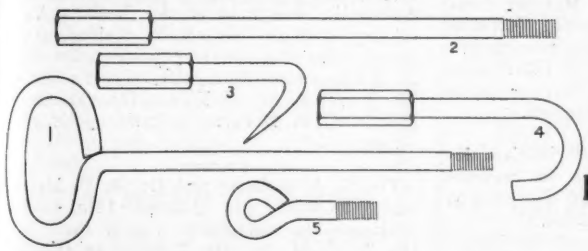

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anatomy and skilled in surgery. He was a large real estate owner and his hobby was thoroughbred horses, on which he won many blue ribbons at county fairs.

Dr. D. A. Illingworth has resigned his position with the Knickerbocker Ice Company, at Brooklyn, N. Y., and has again opened an office for practice at Bennington, Vt.

The Arkansas Veterinary Association met at Texarkana, January 12th, and among the numbers on the program were a paper by Dr. George Caldwell, of the University of Arkansas, on "Contagious Abortion," a lecture on surgery by Dr. L. A. Merillat, of Chicago, and a clinic at the hospital of Dr. Horace E. Rice, where Dr. Merillat demonstrated operations for poll evil and hernia. Dr. A. L. Hearn, of Texarkana, was elected president; Dr. R. L. Pryor, of Clarksville, vice-president, and Dr. R. M. Gow, of Little Rock, re-elected secretary-treasurer.

Dr. D. F. Luckey, state veterinarian, delivered an illustrated lecture on tuberculosis before the Housewives' League, at Jefferson City, Mo., January 23rd.

The twenty-first annual convention of the Indiana Veterinary Medical Association was held at Indianapolis, January 10th and 11th. About 150 veterinarians were in attendance. A report by the executive committee was adopted, recommending that veterinarians who buy serums manufactured by companies that sell direct to farmers, should be ineligible for membership. The program included papers and addresses by Dr. H. J. Kannal, of Rensselaer; Dr. Harvey J. Whiffing, of Lebanon; Dr. Alonzo Ray, of Clay county; Dr. T. A. Sigler, of Greencastle; Dr. C. C. Keller, Dr. W. A. Martin and Dr. R. E. Wood. The paper on "Pruritis or Mad Itch in Cattle," by Dr. Whiffing, elicited considerable discussion regarding the difficulty of distinguishing rabies from mad itch. A clinic in charge of Dr. J. W. Klotz, of Noblesville, and Drs. W. B. Craig and G. H. Roberts, of Indianapolis, was held at the Indiana Veterinary College. Dr. A. F. Nelson, state veterinarian, was elected president; Dr. Roy B. Whitesell, of Lafayette, vice-president; Dr. J. W. Klotz, of Noblesville, treasurer, and Dr. G. H. Roberts, of Indianapolis, secretary.

Dr. G. A. Roberts and Dr. R. C. Moore visited Auburn, Ala., January 15th, to investigate the veterinary school there for the A. V. M. A. Dr. Roberts substituted for Dr. L. A. Klein, who at that time was threatened with an attack of appendicitis.

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Dr. C. M. Merriman, of Mt. Pulaski, Ill., has been appointed as assistant veterinarian by Dr. Dyson, state veterinarian.

The Granite Live Stock Insurance Company, of Bloomington, Ill., was consolidated with the Western Live Stock Insurance Company, of Peoria, Ill., February 1st. This makes the latter concern the largest live stock insurance company in the United States.

Dr. Orville E. McKim, of Watertown, N. Y., was on board the British steamer Georgic when she was attacked by a German raider. Nothing has been heard from him since.

Prof. W. H. Tulley recently resigned from the poultry department of the Michigan Agricultural College. Dr. R. S. Benner was lately appointed assistant professor of veterinary medicine in the same institution.

A new concern has located at Peoria, Ill., for the manufacture of "hog cafeterias." This apparatus consists of a tank containing a series of self-feeding devices where the hogs can go and feed themselves.

The director of a moving picture company at Hollywood, Cal., wants to know how to make a cow act. A certain picture requires that a young lady should show horror at the approach of a cow, but the director is unable to find a cow that knows how to make a horrifying approach.

The Hannover Veterinary Institute has conferred the diploma of Honorary Veterinary Surgeon upon the German chief of staff, Von Hindenberg.

Dr. J. S. Anderson, of Seward, Neb., has been reappointed state veterinarian by the new governor. Dr. W. T. Pritchard, of North Platte, has succeeded Dr. C. A. McKim, of Norfolk, as deputy state veterinarian.

Missouri hog cholera eradication work is reported to have been successfully carried on during the past year in fourteen different counties. Over 200 outbreaks were reported and placed under control.

A milk cow at Marshall, Texas, failed for several days to furnish the usual supply, and upon investigation it was found she had adopted an English bulldog in place of the calf she had recently lost.

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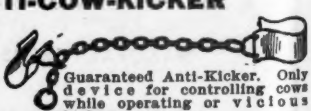

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Anthrax Serum Attenuated Spore Vaccine

confers **immediate protection,** and requires only **one handling** of the animals.

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Double Vaccination with Attenuated Spore Vaccine

The U. S. Bureau of Animal Industry has for several years conducted extensive investigations on the relative value of the various methods of immunization in anthrax. The results of those tests are incorporated in the Department Bulletin No. 340, by Dr. Adolph Eichhorn, Chief of the Pathological Division, in which the advantages of the simultaneous method, or the double vaccination with attenuated spore vaccine, are conclusively established.

The Lederle Anthrax Serum is standardized according to the approved method of the U. S. Department of Agriculture, and the Lederle attenuated "Spore Vaccines" are accurately dosed to a definite number of spores.

Blackleg Vaccines

(Pellets)

For the Prevention of Blackleg in Cattle

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The Lederle Blackleg Pellets are carefully standardized and tested for potency. They are easily administered and confer a desired immunity against the natural infections.

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Anti-Influenza Serum
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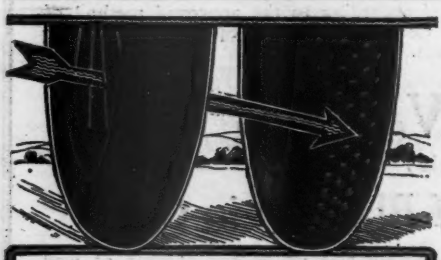
The third annual meeting of the Kansas Registered Veterinary Association (non-graduates) was held at Council Grove, Kan., January 19th and 20th. Day and night sessions were held, also a clinic, at which there were demonstrations of operations for poll evil and fistula, trephining, removal of dermoid cysts, treatment of ventral hernia, etc. Hon. J. H. Mercer, State Live Stock Sanitary Commissioner, of Kansas, delivered an address on the relation of the state sanitary department to the veterinarian. Minneapolis was selected as the next meeting place. Dr. W. H. Mott, of Herington, was re-elected president, and Dr. L. Fredenburg, of Council Grove, secretary. Dr. N. H. Viers, of Minneapolis, was elected treasurer, and Dr. P. J. Mulcaha, of Haven, vice-president. The session closed with a banquet at the Cottage Hotel, music being furnished by the commercial club.

Among the numbers on the program of the Illinois Live Stock Breeders' Association, January 9th, was an address by Dr. W. J. Martin, of Kankakee, Ill., on "The Defects of the Stallion Registration Laws," also a talk by Dr. C. W. McCampbell, of Manhattan, Kan., on "The Farm Horse Situation."

The South Dakota Veterinary Medical Association met at Huron, S. D., January 18th. The following officers were elected for the coming year: President, Dr. George B. Edmonson, of Rapid City; first vice-president, Dr. R. Arbiter, of Marion; second vice-president, Dr. M. F. Wedner, of Woonsocket; third vice-president, Dr. E. L. Eggleston, of Viborg; secretary, Dr. G. H. Sessions, of Miller; treasurer, Dr. J. W. Elliott, of Aberdeen. Huron was chosen as the next meeting place in June. Ten new members joined the association.

The Minnesota Veterinary Medical Association held its annual meeting at St. Paul, January 10th, 11th and 12th, with over 100 veterinarians in attendance. Among those who contributed to the program were Dr. Robert Dixon, dairy inspector of Duluth; Dr. I. J. Murphy, of the Minnesota Public Health Association, St. Paul; Dr. C. W. Gay, of the University of Minnesota; Dr. F. H. McLaren, of Wrenshall, and Dr. Joseph Montgomery, university farm. A clinic was held at the hospital of Dr. C. E. Cotton, at Minneapolis. Dr. E. T. Farnk, of Warren, was elected president; Dr. Robert R. Donaldson, of Argyle, first vice-president; Dr. W. T. Lewis, of Waseca, second vice-president, and Dr. G. Ed. Leech, of Winona, secretary-treasurer.



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The McKillip Veterinary Hospital, Chicago, was incorporated on January 27th, by Drs. George B. McKillip. W. J. McKillip and C. A. McKillip.

Dr. L. C. Kigin, of Purdue University, delivered a series of lectures on hog cholera to farmers of Shelby county, Indiana, during the week of January 15th. The loss from hog diseases in the county during 1915 was $144,960, a large part of which was due to cholera.

Nine suits have been filed against the Percheron Society of America. One suit asks that the concern be restrained from doing further business. A second suit requests the appointment of a receiver, claiming that the concern is bankrupt. The other seven suits are for damages aggregating over $300,000 for failure to register horses.

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Dr. W. V. Nesbitt, of Lincoln, Ill., has been reported seriously ill with pneumonia.

It is reported that Chicago handled 39,000 carloads more live stock in 1916 and remitted to consignors in the country about $150,000,000 more in payment therefor than in 1915. Aggregate sales of cattle, hogs and sheep figured about $500,000,000, the largest volume of business ever transacted at a live stock market. The year's receipts were 2,725,000 cattle, 10,000,000 hogs and 4,300,000 sheep. The gains, compared with the previous year, were 474,000 cattle, 97,000 calves. 1,550,000 hogs, 795,000 sheep and 40,000 horses. The hog crop of 1916 realized more money than any the country had previously produced. Approximately 40,000,000 hogs reached the primary markets of the country, which at a low average cost represents $800,000,000, and this would be materially increased by even a conservative estimate of local slaughter. Prices for sheep and lambs never previously paid, or even closely approached, were recorded and former records shattered. The supply of sheep, while showing a material increase, was more than offset by the broadened demand. A large volume of horse trade was done, but it was mainly on account of the demand from European armies, the commercial trade being impaired by motor truck development.

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